BARBADOS

ANNUAL REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE YEAR

1926-27

ADVOCATE CO. LTD.,
Printers and Book-binders to the Government of Barbados.

REPORT

OF THE

DEPARTMENT OF AGRICULTURE,

BARBADOS,

1926–1927.

LETTERS OF TRANSMITTAL.

Copy No. 414.

DEPARTMENT OF AGRICULTURE,

Barbados,

March 23rd, 1928.

Sir,

I have the honour to forward for transmittal to the Colonial Secretary the Report on the Department of Agriculture for the financial year 1926-27.

I have the honour to be,

Sir,

Your most obedient servant,

C. C. SKEETE,
Acting Director of Agriculture.

Lt. Col. The Honourable
Sir F. J. Clarke, B.A., K.C.M.G., M.C.P.,
Chairman of the Board of Agriculture.

Copy No. 415.

BOARD OF AGRICULTURE,

DEPARTMENT OF AGRICULTURE,

Barbados,

March 23rd, 1928.

Sir,

I have the honour, by direction of the Board of Agriculture, to transmit the Report on the Department of Agriculture for the financial year 1926-27.

I trust that it may be possible to print and publish this Report at an early date.

I have the honour to be,

Sir,

Your most obedient servant,

F. J. CLARKE,
Chairman of the Board of Agriculture.

The Honourable
The Colonial Secretary,
Public Buildings.

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STAFF.

Director of Science and Agriculture	J. P. d'Albuquerque, M.A., (Cantab.) F.I.C., F.C.S., (London).
Assistant Director	C. C. Skeete, B.A., (Cantab).
Assistant Geneticist	L. C. C. Liebenberg, B.Sc.A., M.S.A.
Assistant Agricultural Chemist	S. J. Saint, B.Sc., (Reading) A.I.C.
Assistant to Professor of Chemistry.....	R. R. Hall, B.A. (Cantab).
Lecturer in Natural & Agricultural Sciences	J. H. Robinson, B.A. (Cantab).
Chief Analytical Assistant	C. A. Coppin, B.A.Sc., (Toronto)
Chief Clerk	H. O. Ramsey.
Second Clerk	G. D. Ramsey.
Third Clerk	C. G. Humphrey.
Fourth Clerk	Miss D. I. Seale.
First Field Assistant	C. O. Haynes.
Second Field Assistant	C. B. Foster.
Third Field Assistant	S. H. Evelyn, D.I.C.T.A.
Fourth Field Assistant	J. N. W. Niccolls.
Analytical Assistant	H. A. Jones.
„ „	C. St. A. Alleyne.
„ „	L. A. Hall.
Botanical Assistant	C. C. Corbin.
Foreman in charge of Nurseries	S. A. Eastmond.

ESTABLISHMENT.

The members of the Board of Agriculture, appointed for the Legislative Session 1926-27, were as follows:—

Lt. Col. The Honourable Sir F. J. Clarke, B.A., K.C.M.G., M.C.P., Chairman.
The Honourable G. L. Pile, B.A., M.L.C.
The Honourable A. P. Haynes, M.L.C.
The Honourable E. A. Hinkson, M.B.E., M.L.C.
W. B. H. Massiah, Esq., M.A., M.D., C.M., M.C.P.,
S. C. Thorne, Esq., M.C.P.
E. L. Skeete, Esq., B.A., M.C.P.
G. C. Mahon, Esq., M.C.P.
Professor J. P. d'Albuquerque, M.A., F.I.C., F.C.S., (Ex. Officio).

Professor J. P. d'Albuquerque went on leave on the 28th of April and returned on the 15th of November. During this period Mr. C. C. Skeete, Assistant Director, acted as Director of Agriculture, and Mr. R. R. Hall, Assistant to Professor of Chemistry, acted as Island Professor of Chemistry.

During the absence of Professor d'Albuquerque, the Acting Director of Agriculture filled his place on the Board of Agriculture.

The Board of Agriculture held sixteen meetings during the course of the year.

On the 25th of June, Mr. L. C. C. Liebenberg, B.Sc.A., M.S.A., was appointed as Assistant Geneticist. Mr. Liebenberg underwent a short course in the methodology of sugar cane genetics under the Professor of Genetics at the Imperial College of Tropical Agriculture and assumed his duties in Barbados on the 4th of September.

On the 11th of January, 1927. Mr. S. J. Saint, B.Sc., A.I.C., was appointed as Assistant Agricultural Chemist. Mr. Saint arrived in the Colony and assumed his duties on the 25th of February. A well-equipped laboratory was prepared for Mr. Saint before his arrival.

EXPENDITURE.

Personal Emoluments	£5,647	16	6
Travelling Allowances	734	12	6
Experiment Stations and Botanic Station	1,845	16	3½
Mill House, Ginnery and Laboratories	1,141	11	1
Total	£9,369	16	4½

RECEIPTS.

Plants in Pots	£66	16	1
Sundries	17	13	10½
Total	£84	9	11½

PLANT DISTRIBUTION.

The receipts for the sale of plants, etc., for the year 1926-27 amounted to £84. 9. 11½.

The introduction and distribution of ornamental flowering trees was continued and extended during the year. The thanks of the Department are due to the Departments of Agriculture and Botanic Gardens in other Colonies that kindly collected and forwarded seeds.

The distribution of plants, other than fruit trees, during the year is as follows:—

(1)	Ornamental Flowering trees	803
(2)	Ornamental foliage trees	49
(3)	Ornamental plants	
	(a) Palms	632
	(b) Rose plants	403
	(c) Bougainvillaea	331
	(d) Miscellaneous	703
(4)	Sugar Cane Cuttings	9,210
(5)	Elephant Grass cuttings	100
(6)	Bengal Beans	2 gallons

The equipment of the Department was such that it was only possible to grow for distribution a small number of fruit trees. The distribution of these trees during the season was as follows:—

Breadfruit	16
Golden Apple	4
Granadilla	6
Grape Vine	5
Guava	3
Lemon	6
Lime	50
Mandarin	3
Mango (Grafted)	11
Orange	7
Pawpaw	24
Pear (Grafted)	13
Soursop	4
Star-apple	3
Sugar Apple	8
Tamarind	2

ARBOR DAY.

The Department issued the customary invitation to the public to make application for the growth and free distribution of ornamental flowering and foliage trees and shrubs. The following trees were distributed during the months of July and August:—

Botanical Name.	Local or Common Name	Number
Adansonia digitata, L.	Baobab	1
Adenanthera pavonina, L.	Circassian bean	7
Anona muricata	Soursop	7
„ *squamosa*	Sugar Apple	1
Bauhinia variegata, L.	Napoleon's cocked hat	7
Bauhinia sp.		6
Bontia daphnoides, L.	Barbados Olive	117
Bougainvillaea (Purple).		248
„ *(Cherry Red)*		38
Cananga odorata		3
Cassia Fistula, L.	Yellow cassia	31
„ *floribunda*		1
„ *grandis*, L.		12
„ *javanica*, L.	Cherry blossom cassia	38
„ *nodosa*		16
„ sp.		2
Casuarina equisetifolia, L.	Casuarina or Mile Tree	1756
Chlorophora tinctoria, Gaud.	Fustic	1
Colvillea racemosa		6
Cordia sebestena, L.	Cordia	24
Dillenia indica		5
Erythrina sp.	Lent tree	3
„ *umbrosa*	Immortel	3

Ficus altissima		1
Garcinia morella		1
Galphimia glauca	Canaris	15
Gliricidia maculata		1
Grevillea robusta, A. Cunn.	Silk Oak	7
Guaiacum officinale, L.	Lignum vitae	15
Haematoxylon campechianum, L.	Logwood	3
Hura Crepitans	Sandbox tree	1
Jacaranda ovalifolia		71
Kigelia pinnata	Sausage tree	2
Kleinhovia hospita		2
Lagerstroemia indica	King of Flowers	12
„ *Flos-reginae*	Queen's Flower	3
Lonchocarpus violaceus, Oliver	Spanish Ash	167
Lysiloma sabicu, Benth.	Horseflesh mahogany	9
Meringo		2
Odontadenia		3
Oncoba echinata		3
Oreodoxa oleracea, Mart.	Cabbage Palm	1
Parkia biglandulosa, Wight.	Tantacayo tree	4
Parmentiera cereifera	Candle tree	1
Peltophorum linnaei	Brazilletto wood	3
„ *vogelianum*, Walp-Rep	Pride of India	15
Pithecolobium saman, Benth.	Saman or Inga	4
Poinciana regia, Boj.	Flamboyante	32
Poinsettia		3
Portlandia grandiflora		12
Posoqueria longiflora, Aubl.		7
Pterocarpus indicus	Padouk	3
Solanum macranthum	Potato tree	44
Spathelia symplex, L.		3
Spathodea campanulata	Fountain tree	3
Swietenia macrophylla, King	British Honduras mahogany	92
„ *mahagoni*, L.	Barbados mahogany	31
Taraktogens kurzii		3
Tabernamontana		1
Tamarindus indica, L.	Tamarind	18
Tecoma pentaphylla	Pink Poui	8
„ *serratifolia*, G. Don.	Yellow Poui	6
Thespesia populnea, Soland	Anodyne	1
Triplaris surinamensis		1
Chenar plant		3
Lilac tree		5

SUGAR CANE INDUSTRY.

According to the Customs returns for the year 1926, 42,990 tons of vacuum pan crystals, 2,795 tons of muscovado sugar and 7,760,334 wine gallons of molasses, equal at 110 gallons per puncheon to 70,549 puncheons of molasses of all grades, were exported of the total value of £904,564 made up as follows:—

Sugar	Tons	Value
Dark Crystal	42,990	£558,871
Muscovado	2,795	34,948
	45,785	£593,819

Molasses	Gallons	Value
Fancy	7,085,523	£295,230
Choice	431,608	13,488
Vacuum Pan	243,203	2,027
	7,760,334	£904,564

Fancy molasses is concentrated cane juice from which most of the impurities have been removed, but owing to the impossibility in the ordinary muscovado sugar factories of concentrating each tayche or panful of fancy molasses to the same density, it is difficult to say how many gallons of this molasses are equivalent to a ton of muscovado sugar. However, from data obtained from various sources it would appear that 380 wine gallons of fancy molasses at 41° Baume are equivalent to one ton (2,240 lb.) of centrifugal muscovado sugar and 115 wine gallons of choice molasses. At this rate, the fancy molasses manufactured in 1926 is equivalent to 21,441 tons of sugar. The total sugar crop therefore if no fancy molasses had been made, would have been 64,431 tons, i.e. 1,136 tons less than the previous year. The above does not include the sugar consumed in the Island, which is estimated to be about 8,000 tons.

THE COTTON INDUSTRY.

The cotton crop of 1925-26, planted in August 1925, showed great promise in the early months, but the bolls were attacked at an early stage by pink boll worm on a greater scale than in any previous year, with the result that on the whole the yield was poor.

The total number of acres planted in cotton for the season 1925-26 was 3,676 acres, and the approximate total yield was 1,205,509 lb seed cotton, the general yield of the island being 328 lb. seed cotton per acre. The lint percentage obtained was 24.6%, the yield of cotton seed, 895,320 lb., and the yield of lint 296,555 lb., the loss being 13,634 lb.

From the Customs returns it is ascertained that, for the year from October 1, 1925, to September 30, 1926, there were exported 548 bales of lint, weighing 298,715 lb. and valued at £46,051. 17s. 11d. and 27 bales of linters, weighing 13,363 lb. and valued at £230 9s. 3d. The value of 895,320 lb. of cotton seed at $40.00 per ton is £3,330 16s. 1d. The approximate total value of the cotton crop of the Island for 1925-26 is therefore £49,613. 3. 3.

The cotton crop 1926-27 suffered even worse from the ravages of the pink boll worm than in the previous year. In certain districts there was a considerable outbreak of the diseases arising from the infection with *Bacterium malvaccarum*, causing the condition known as "black arm" leading to the drying up of fruiting branches, and the condition known as "bacterial boll disease" arresting the normal development and causing the shedding of bolls. In consequence of these diseases the yield of cotton was the lowest for many years.

The total number of acres planted in cotton for the season 1926-27 was 3,526 acres, and the approximate total yield was 787,394 lb. of seed cotton, the general yield of the Island being 223 lb. seed cotton per acre. The lint percentage obtained was 24.3%, the yield of cotton seed 576,766 lb., and the yield of lint 191,337 lb. approximately, the loss being 19,291 lb. approximately.

From the Customs returns it is ascertained that, for the year from October 1, 1926, to September 30, 1927, there were exported 359 bales of lint, weighing 187,709 lb. and valued at £25,809 19. 9 and 7 bales of linters weighing 3,114 lb. and valued at £77 17. 0. The value of 576,766 lb of cotton seed at $40.00 per ton is £2,145 14. 2. The approximate total value of the cotton crop of the Island for 1926-27 is therefore £28,083 10. 11.

LOCAL AGRICULTURAL EXHIBITION.

The Local Agricultural Exhibition for Peasant Proprietors and children of the Elementary Schools was held on December 8, 1926, at Lemon Arbor Factory, St. John, which was kindly lent for the occasion by Mr. J. D. Chandler, M.C.P.

Ideal weather conditions prevailed and there was a large attendance of persons from St. John and the outlying parishes to see the results of the work of the peasants and the school children. His Exellency the Governor Mr. W. C. F. Robertson, C.M.G., accompanied by his A.D.C. Lieut. Bradburn, R.N., visited the Show and displayed a keen interest in the exhibits. His Excellency offered a prize to the Exhibitor who obtained the largest number of points in the vegetable section and the proud winner of this was Mr. Gladstone Smithwick, Mt. Hilloby School. The Police Band was in attendance and helped to enliven the proceedings.

With the exception of the live stock, all of the exhibits were exhibited in the factory building which was fitted up by the Department of Agriculture for the occasion. Agricultural produce of every description was on display, together with some good specimens of handiwork, all neatly arranged for inspection, and throughout the day there was an eager crowd of spectators inspecting the various stalls.

The school children who usually display a great deal of interest in the Show sent in 307 exhibits of articles which had been grown in school gardens and 107 exhibits of plants growing in half barrels, tubs, pots or boxes, which were greatly admired.

The agricultural work was well performed. Satisfactory arrangements for its performance were made by Mr. L. A. Chase, Chief Officer of the Government Industrial School, to whom this task was entrusted, and the children carried out the operations with pleasure. 347 boys and girls competed and the number of operations for which entries were received totalled 607.

The Peasants' section was moderately represented. There was a paucity of vegetable exhibits and other articles and the poultry exhibits were also not numerous.

The Society for the Prevention of Cruelty to Animals again offered prizes, amounting to ten dollars, for the best kept donkeys, harness and carts. It is especially appropriate for the Society to offer these prizes at a Peasant Show and their kind action was much appreciated.

With regard to prize winners among the Head-teachers, Mr. E. G. Smithwick, Mt. Hilloby, was awarded first prize for the best kept school garden; Mr. L. T. Gay, Welches Combined, second; Mr. P. W. Jones, Holy Innocents, third and Mr. O. Walcott, St. Joseph Church Boys, fourth.

For collection of plants growing in half barrels, tubs or boxes and exhibited by the boys of any Elementary School: Messrs. O. Walcott and E. G. Smithwick, first; L. T. Gay and J. R. Bailey, second, and P. W. Jones, third.

Messrs. O. Walcott, St. Joseph Church Boys and F. A. Williams, St. George Church Boys, won the first prizes for agricultural work performed by the boys of any Elementary School as well as for the largest number of prizes gained by any Elementary school the boys of which competed in agricultural work. Messrs. L. C. Moore, St. Augustine, and O. Crichlow, Mt. Tabor, were second in each case. In the Girls' section, Miss I. Bradshaw, St. Patricks, a keen and enthusiastic worker, was the recipient of both first prizes.

In the afternoon, the prizes were distributed by His Excellency the Governor.

Professor d'Albuquerque then addressed the gathering. After thanking His Excellency for coming and distributing the prizes and for the deep interest which he evinced in agriculture, he expressed his appreciation of the services rendered by all those who helped to make the Show a success. He referred to the two recent additions to the scientific side of the Staff of the Department, and spoke in eulogistic terms of his relations with the Board of Agriculture from whose hands he had received the greatest possible help.

His Excellency the Governor, in the course of an admirable address, associated himself with the remarks of Professor d'Albuquerque in connexion with the work of the Committee who had organized the Show and then proceeded to make a few suggestions. The first was that it might be more advantageous if the Show could be held on a public holiday. It was possible, he said, that people were prevented from attending these Exhibitions on ordinary days by reason of the fact that they had to give up a certain amount of work and, as a consequence, a certain amount of money. The next suggestion which was received with cheers was that the prizes should be more substantial. He thought that if the value of the prizes was increased exhibitors from greater distances would be tempted to compete at the Shows. His Excellency also referred to what was being done in other countries, especially in Ceylon, to improve the position of small farmers. A number of them formed themselves into a Co-operative Society, placed their goods on the market, and in this way protected one another's property. His Excellency believed that a similar Society might do much for the small growers of this Colony.

Sir Frederick Clarke having briefly addressed the gathering, the function came to a close amid hearty cheers for His Excellency, Professor d'Albuquerque and Sir Frederick Clarke.

G. D. R.

INSPECTION AND FUMIGATION OF PLANTS, SEEDS, ETC.

MOSAIC DISEASE INSPECTION.

Mosaic disease inspection was only done at the request of certain estate managers in those fields from which plant cuttings were to be taken.

INSPECTION AND FUMIGATION OF IMPORTED PLANTS, SEEDS, ETC.

The usual restrictions for the prevention of the introduction of foreign pests and diseases were enforced during the year. One hundred and eighty-five consignments of plants, seeds, etc. were inspected and thirteen packages of growing plants and cuttings had to be destroyed.

FUMIGATION OF COTON SEED.

Thirty-three consignments of cotton seed amounting to 33,121 bags, imported for the extraction of oil, were fumigated with sulphur dioxide in the holds of the various vessels.

ENTOMOLOGICAL WORK.

INSECT ATTACKS REPORTED OR OBSERVED.

Sugar Cane.

The root boring larvae of the beetles *Diaprepes abbreviatus*, Linn. and *Lachnosterna Smithi*, Arrow, continue to be two of the major pests of the sugar cane. Every effort should be made by planters to encourage the increase in numbers of *Tiphia parallela*, the hymenopterous parasite of the larva of the brown hardback *Lachnosterna Smithi*, Arrow. This parasite feeds on secretions on the leaves of the plant, *Cordia interrupta*, and on scale-infested guava plants. These plants should therefore be planted and encouraged in suitable places in every part of the Island.

It is observed that the grey king bird, *Tyrannus dominicensis*, generally known in Barbados as the "Doctor Morris Bird," continues to be allowed existence in this Island in spite of the fact that it is responsible for the destruction of large numbers of *Tiphia parallela* and other useful insects. Every opportunity of destroying this bird should be taken advantage of.

It is unfortunate that efforts to bring about the extermination of the mongoose have been discontinued or abandoned. The mongoose is responsible for the great decline in numbers of the toad, *Bufo agua*, at one time so useful in destruction of the root borer beetles.

Probably the greatest insect pest of sugar cane at present in the Island is the moth stalk borer, *Diatraea saccharalis*, Fabr. This is responsible for a greater loss than many would imagine.

It is very gratifying to be in a position to report that owing to the extreme kindness and enthusiasm of Mr. Harold E. Box, now Chief of the Division of Entomology of the Tucuman Agricultural Experiment Station, Argentine, a number of specimens of two kinds of hymenopterous insects, namely *Ipobracon grenadensis*, Ashm. and *Microdus* sp., larval parasites of *Diatraea* were introduced into the Island. At the end of the year arrangements were being made under the direction of Mr. Box and with his assistance, for the importation and multiplication of these parasites in the Island.

It must be particularly borne in mind that the establishment in every part of the Island of these most important parasites is dependent upon a general supply of food. These insects, like *Tiphia parallela*, feed on secretions on the leaves of *Cordia interrupta* which should therefore exist plentifully in the neighbourhood of all sugar cane fields.

COTTON.

The pink boll worm, *Pectinophora gossypiella*, Busck, continues to be a very serious pest and in some fields caused a loss exceeding 75 per cent. It has already been observed where the operations of clearing the fields of refuse cotton and bringing about its destruction at the end of the previous season were more thoroughly conducted, the infestation during this season was considerably less severe.

A parasite, *Parasierola nigrifemur*, Ashm. of the pink boll worm has made its appearance during the season, but so far it has failed to make its presence felt in the control of the pest.

There was a severe outbreak of the pest *Alabama argillacea*, Gwen. at certain intervals during the season.

MISCELLANEOUS TREES, PLANTS, ETC.

During the year reports were written on the following subjects:—

1. An instance of flies, which, due to their stinging habits, were thought dangerous, was reported. These flies on examination proved to belong to the family of Moth Flies or *Psycodidae*. They frequent damp places, are harmless and can be quite easily controlled by Flit or Flyosan sprays. The only harmful member of this family is the "Phlebotomy Fly," the vector of Phlebotomy Disease, but no instance of its occurrence in Barbados is recorded.

2. A lepidopterous larva, which was reported to be feeding on the leaves of many garden plants was identified as *"Herse (Protoparce) convolvuli,"* or as it is commonly called, the "Tobacco Worm". This pest is easily controlled by picking or by the application of insecticides.

3. Another case of Rosetting of Mahogany Bark was investigated at Harrison College. Again, on examination of the Rosettes, nematodes were found to be present.

MYCOLOGICAL WORK.

(By S. H. EVELYN.)

1. An instance of the cotton boll disease was reported. Examination revealed that the bolls were severely attacked by "*Bacterium malvacearum* var. *Barbadense*, the bacterium responsible for Bacterial Boll Disease of Cotton. So far no effective methods of control have been worked out.

2. A condition known as Wilt or Stem Canker of ornamental and fruit trees, was investigated. The Lignum vitae trees, which showed these symptoms, when examined revealed the presence of a *Fusarium* spp. of fungus which is associated with the above mentioned disease. No methods of control have yet been formulated.

3. A case which was identified with "Sugar Cane Wilt Disease" was reported from Pickerings Plantation where about a dozen or two dozen stools of canes died as a result of the affection. The fungus responsible—*Cephalosporium Sacchari*—lives as a saprophyte on a variety of materials and probably occurs in the soil. No definite measures of control are at present called for, the disease being fairly insignificant, but suspected stools should be avoided as material for planting.

4. An instance of a Rot of yams was reported. The diseased yam tuber submitted showed all the symptoms connected with the disease known as "Tuber Rot of Yams." The fungus responsible for this affection has not yet been isolated and no methods of control have yet been worked out.

5. A few cases of a disease of Rose Leaves were reported and identified as "Black Spot of Rose Leaves", caused by the fungus *Diplocarpon Rosae*. Control can be effected by dusting with a mixture of fine sulphur 9 parts and powdered arsenate of lead 1 part. Dusting should occur at the first signs of the disease.

MISCELLANEOUS.

An instance of a very troublesome graminaceous weed was reported. This grass has been identified as Xmas Grass, *Themeda arguens*, and occurred to such a large extent and spread so rapidly on the Garrison Savannah that the Department was called in to suggest means of eradication. A gang was requisitioned to dig up and burn this grass under supervision of the Department.

METEOROLOGY.

The following are summaries of the observations recorded at the Government Meteorological Station for the year 1926, the details of which are given in Table 1.

Barometric Pressure. During 1926 the mean pressure corrected for temperature and gravity and reduced to sea-level was at 9.m. 29.980 and at 3 p.m. 29.903, the highest recorded being 30.111 on March 14th and the lowest 29.715 on November 6th. For the ten years 1916-25 the average barometric pressure was at 9 a.m. 29.974 and at 3 p.m. 29.902. The highest pressure at 9 a.m. during the ten years was on January 22nd 1925, when it was 30.127 and the lowest at 3 p.m. on April 14th 1915 when it was 29.669.

Temperature. The mean maximum temperature for the year 1926 was 86.4° F. and the mean minimum 73.1° F. The maximum extreme for the year which was 91.3° F. was registered on September 20th and the minimum extreme which was 63.6° F. was registered on January 21st. The mean average temperature was 79.8° F. and the highest monthly range for the year was 22.2° F., and the lowest 15.7°F., the mean monthly range being 19.1° F.

Tension of Vapour and Relative Humidity. The mean tension of vapour for January—June, 1926, was at 9 a.m. .656 and at 3 p.m. .633 and for July—December at 8 a.m. .799 and at 5 p.m. .768. For the ten years 1916-25 the average tension of vapour was at 9 a.m. .698 and at 3 p.m. .681. The mean relative humidity for the year 1926 was for January—June at 9 a.m. 61; at 3 p.m. 56; and for July—December at 8 a.m. 75 and at 5 p.m. 72. For the ten years 1916-25 the average relative humidity was at 9 a.m. 66 and at 3 p.m. 63.

Wind. The mean daily velocity of the wind during 1926 was 8.4 miles per hour, the maximum being 15.0 miles per hour on June 30, and the minimum 2.6 miles per hour on September 5th. The average daily velocity for the ten years ended 1925 was 11.8 miles per hour.

Rainfall. The rainfall measured at the Government Meteorological Station during 1926 amounted to 47.05 inches. This fell on 181 days, the greatest fall being 3.41 inches on October 9th. For the ten years 1916-25 the average rainfall was 43.91 inches and the average number of days on which rain fell was 170.

Rainfall of the Island. The total mean rainfall for the year 1926 from 154 stations was 54.58 inches which fell on 149 days and was 6.13 inches below the average for the sixty years ended December 31, 1925 which was 60.71 inches.

TABLE I.

METEOROLOGICAL REPORT FOR 1926.

DEPARTMENT OF AGRICULTURE, BARBADOS.

HEIGHT ABOVE SEA-LEVEL 181 FEET.

Months.	Barometric Pressure corrected to 32° F. Lat. 13° 7′ N. and M. S. L., and corrected for gravity.					Temperature.								Tension of Vapour.			Relative Humidity.			Wind Velocity, miles per hour.	Rainfall.	No. of days on which rain fell
	9 a.m.	3 p.m.	Mean.	Highest.	Lowest.	Maximum Mean.	Minimum Mean.	Maximum Extreme.	Minimum Extreme.	Maximum blackened bulb, 4 feet from ground in vacuo.	Mean for month.	Range for month.	Dew Point 9 a.m.	Dew Point 3 p.m.	9 a.m.	3 p.m.	Mean.	9 a.m.	3 p.m.	Mean.			
January ...	30·030	29·915	29·988	30·091	29·877	84·1	70·5	85·8	63·6	148·3	77·3	22·2	67·1	66·3	·670	·647	·659	66·5	62·4	64·5	9·8	3·31	18
February ...	30·027	29·936	29·982	30·102	29·875	84·5	70·7	86·6	67·0	145·9	77·6	19·6	65·7	65·7	·637	·595	·616	64·2	54·5	59·3	10·0	1·14	13
March ...	30·034	29·951	29·992	30·111	29·870	85·6	70·6	87·8	65·5	149·6	78·1	21·3	65·9	64·4	·642	·607	·625	61·3	55·7	58·5	9·0	·90	13
April ...	30·049	29·966	30·008	30·109	29·912	87·5	72·7	88·5	70·1	150·4	80·1	18·4	65·1	64·1	·621	·601	·611	55·4	51·8	53·6	10·4	·05	4
May ...	29·984	29·915	29·950	30·082	29·843	88·7	74·2	89·8	71·0	152·0	81·5	18·8	68·0	66·8	·686	·659	·672	58·5	54·3	56·4	9·2	·43	6
June ...	29·995	29·932	29·964	30·057	29·886	88·1	74·9	90·0	71·6	152·6	81·5	18·4	68·5	68·0	·703	·685	·691	62·2	58·2	60·2	10·3	4·73	14
July ...	29·971	29·909	29·940	30·039	29·736	87·4	75·1	90·0	72·0	147·5	81·3	18·0	72·8	70·7	·806	·755	·781	75·3	68·0	71·7	9·3	3·62	19
August ...	29·931	29·911	29·946	30·053	29·873	87·8	74·5	90·0	72·4	148·3	81·2	17·6	73·2	72·3	·822	·793	·808	71·7	71·8	73·2	7·1	6·03	22
September ...	29·927	29·859	29·892	30·010	29·812	88·1	74·4	91·3	69·2	157·0	81·3	22·1	72·9	71·9	·813	·780	·797	73·5	71·3	72·4	5·6	4·42	15
October ...	29·911	29·828	29·870	29·966	29·769	85·6	74·2	87·5	71·8	146·6	79·9	15·7	73·1	72·1	·813	·789	·801	77·8	74·2	76·0	6·2	9·18	23
November ...	29·915	29·829	29·872	29·982	29·715	85·1	73·4	86·8	69·8	147·3	79·3	17·0	73·5	72·1	·827	·791	·808	79·3	79·0	79·2	5·9	10·38	24
December ...	29·937	29·857	29·895	30·050	29·794	84·1	71·6	86·4	65·0	147·5	77·9	20·4	69·0	68·5	·711	·702	·706	71·7	72·3	72·0	7·7	2·56	10
	359·761	358·838	359·300	360·652	357·962	1036·6	876·8	1060·5	831·0	1793·0	957·0	229·5	*	*	*	*	*	*	*	*	100·5	47·05	181
	29·980	29·903	29·942	30·054	29·830	86·4	73·1	88·4	69·3	149·4	79·8	19·1	*	*	*	*	*	*	*	*	8·4	...	...

* From July, hours of observation (with respect to those columns indicated by stars) were changed from 9 a.m. and 3 p.m. to 8 a.m. and 5 p.m.

BARBADOS RAINFALL

FROM

January to December, 1926.

TAB

SUMMARY OF BARBADOS RAINFALL FROM

Name of Station.	No. of Stations.	January.		February.		March.		April.		May.		June.	
		Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
I. DISTRICT "A"													
ST. MICHAEL.													
Lowlands ..	20	16·30	3·09	8·50	1·21	7·65	·83	3·15	·17	3·60	·39	12·05	5·00
II. DISTRICT "B"													
(a) CHRIST CHURCH													
Lowlands ...	16	16·69	2·98	7·75	1·25	7·81	·81	3·00	·18	6·06	·53	13·19	4·73
(b) ST. GEORGE.													
Highlands ...	8	19·25	4·26	10·63	1·88	9·12	1·68	6·00	·49	6·88	1·06	15·25	6·68
(b) ST. GEORGE.													
Lowlands ...	11	16·73	3·49	8·73	1·61	7·82	·99	3·64	·20	4·73	·63	13·73	5·48
III. DISTRICT "C."													
(a) ST. PHILIP.													
Highlands ...	3	20·32	2·94	8·00	1·31	10·67	1·31	3·67	·25	6·67	·75	13·67	5·50
(a) ST. PHILIP.													
Lowlands ...	20	15·35	2·87	7·00	1·32	6·90	·98	3·10	·28	4·60	·43	11·40	4·85
(b) ST. JOHN.													
Highlands ...	12	18·58	3·78	10·25	1·94	9·17	2·03	5·50	·56	6·17	1·08	12·00	6·66
(b) ST. JOHN													
Lowlands ...	3	16·34	2·69	8·00	1·14	6·33	1·33	4·33	·72	3·67	·85	10·33	5·94
IV. DISTRICT "D."													
(a) ST. THOMAS.													
Highlands ...	10	19·90	4·55	13·10	2·49	10·60	2·29	6·10	·76	8·20	1·09	14·50	6·34
(a) ST. THOMAS.													
Lowlands ..	6	19·67	3·63	10·83	1·43	10·33	1·65	5·67	·47	5·16	·66	13·83	4·67
(b) ST. JAMES.													
Highlands ...	1	20·00	4·37	13·00	2·35	9·00	1·85	6·00	·95	8·00	1·40	13·00	5·45
(b) ST. JAMES.													
Lowlands ...	9	16·00	2·71	9·56	1·48	6·33	1·17	3·55	·36	4·11	·44	11·55	3·90
V. DISTRICT "E."													
(a) ST. PETER.													
Highlands ...	9	18·22	4·87	11·89	2·58	9·11	1·95	5·11	·54	5·44	1·35	11·33	5·47
(a) ST. PETER.													
Lowlands ...	6	19·84	4·21	11·83	1·87	10·33	1·37	4·33	·67	5·50	·82	14·00	4·0
(b) ST. LUCY.													
Lowlands ...	10	14·40	3·28	7·30	1·44	8·00	1·74	3·00	·17	4·70	·75	12·00	4·0
II. DISTRICT "F"													
(a) ST. JOSEPH.													
Highlands ...	5	18·20	4·47	11·80	2·61	9·80	2·22	4·80	81	6·00	1·78	12·20	6·6
(a) ST. JOSEPH													
Lowlands ...	1	12·00	2·63	8·00	1·45	6·00	1·42	3·00	·55	5·00	1·31	11·00	4·4
(b) ST. ANDREW.													
Highlands ...	2	19·00	4·23	10·50	1·79	5·50	1·46	4·50	·68	4·00	1·52	11·50	5·0
(b) ST. ANDREW.													
Lowlands ...	2	15·50	3·68	6·00	1·50	4·50	·89	2·50	·23	3·00	1·10	9·00	4·7
	..	332·30	68·73	182·67	32·68	154·97	27·97	80·95	9·04	101·49	17·94	235·53	99·7
	154	17·49	3·62	9·61	1·72	8·16	1·47	4·26	·48	5·34	·94	12·40	5·2

LE II.

JANUARY TO DECEMBER, 1926.

July.		August.		September.		October.		November		December.		Totals.	
Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.	Days.	Inches.
14·20	4·06	16·30	6·11	11·90	4·15	17·55	9·64	16·35	9·81	7·20	2·38	134·75	46·84
13·38	3·83	14·75	5·78	12·13	4·43	18·81	9·29	15·12	9·97	10·37	2·91	139·06	46·69
14·62	4·07	19·62	6·87	15·00	6·80	20·62	11·65	15·88	10·71	11·88	3·53	164·75	59·68
14·82	3·46	15·27	5·67	13·09	5·43	18·45	8·91	14·54	10·59	9·54	3·03	141·09	49·52
14·00	3·85	20·33	5·72	12·34	4·00	18·33	7·64	16·33	10·86	7·00	1·86	151·34	45·99
13·05	3·45	15·40	5·39	12·15	4·53	17·60	8·32	14·70	11·23	9·10	2·33	130·35	45·98
13·08	3·83	20·42	6·73	12·33	5·77	20·67	10·51	15·50	11·20	11·00	3·53	154·67	57·61
12·67	3·42	18·33	5·82	10·00	4·67	17·33	8·23	13·67	9·83	9·00	2·10	130·00	46·74
19·10	5·71	20·50	9·13	17·40	9·41	22·10	11·64	19·40	13·46	13·60	4·82	184·50	71·69
19·17	6·15	20·33	6·97	17·17	7·44	21·67	12·45	19·50	11·45	13·67	3·54	177·00	60·51
22·00	8·40	18·00	10·65	17·00	9·53	20·00	9·76	20·00	10·69	11·00	3·61	177·00	69·04
18·56	7·75	18·44	6·91	15·44	6·75	18·11	11·19	18·56	10·09	9·90	2·68	150·11	55·43
14·00	4·24	17·78	11·90	16·44	8·47	20·89	8·32	15·89	9·95	9·45	2·47	155·55	62·13
18·17	4·86	20·50	10·36	18·00	10·03	20·83	8·55	17·17	9·63	11·00	2·51	171·50	58·90
9·20	3·04	15·80	9·59	14·10	4·98	18·20	6·65	15·70	8·89	5·50	2·46	127·90	47·06
14·80	4·85	18·60	8·23	14·20	6·06	20·00	10·36	19·00	11·76	12·00	5·13	161·40	64·95
10·00	4·37	12·00	5·57	10·00	5·78	22·00	8·20	17·00	10·14	8·00	2·81	124·00	48·69
11·50	3·63	20·00	11·13	16·50	6·08	23·00	7·09	18·50	9·49	12·50	2·61	157·00	54·78
10·50	3·17	14·50	9·19	12·50	5·32	19·00	7·82	12·00	5·28	7·00	1·84	116·00	44·78
276·82	86·14	336·87	147·72	267·69	119·63	375·16	176·22	314·81	195·03	188·71	56·18	2847·97	1037·01
14·57	4·53	17·73	7·78	14·09	6·30	19·74	9·27	16·57	10·26	9·93	2·96	149·89	54·58

EXPERIMENTAL

SUGAR CANE

AND

COTTON.

SUGAR-CANE.

LIST OF STATIONS REFERRED TO IN THE FOLLOWING SECTIONS.

1. CODRINGTON.

Codrington Experiment Station, St. Michael. Experimental Headquarters of Department of Science and Agriculture.

2. DODDS.

Plantation attached to Government Industrial Schools, St. Philip.

3. SELECT SEEDLING STATIONS.

Low Black Soils	Graeme Hall Plantation,		Christ Church.
	Coverley	„	„ „
	Hannays	„	„ „
	Carrington	„	St. Philip
	Hampton	„	„ „
	Brighton	„	St. George
	Waterford	„	St. Michael
	Sandy Lane	„	St. James
	Warleigh	„	St. Peter
	Pickerings	„	St. Lucy
Medium Black Soils	Ridgeway	„	St. Thomas
	Newcastle	„	St. John
	Lears	„	St. Michael
Medium Red Soils	Clifton Hall	„	St. John
	Lemon Arbor		St. John
	Vaucluse	„	St. Thomas
	Springhead	„	St. James
High Red Soils	Blackmans	„	St. Joseph
	Buckden	„	„ „
	Lion Castle	„	St. Thomas
	Mount Wilton	„	„ „
Scotland District	Baxters	„	St. Andrew

RAINFALL.

The rainfall is recorded in Table III. The rainfall for the period of growth of the sugar cane crop referred to herein and its effect on that crop in its various stages is briefly summarized in the following remarks. Beginning in 1925 with one of the smallest amounts of rainfall on record for the month of December, the cane crop was seriously handicapped and a poor "spring" was fairly general. A considerable recovery and improvement took place in January and February 1926 when the rainfall was slightly above average, but there followed from March to May a drought of unusual severity. With only moderate rainfall in the months of June to September, the cane crop was always below average, but with heavy rainfall during the last three months of 1926, followed by frequent showers in January and February 1927, a crop of a high tonnage and low sugar content was eventually produced.

SEED SAVING AND SOWING.

SEEDLINGS OF WHICH ONLY THE SEED BEARING (FEMALE) PARENTS KNOWN.

During the months of November—December 1926, seed was gathered from ripe arrows maturing in open fields situated in various districts and a total of 1,045 boxes 2ft x 1ft by 6ins. deep was sown with seed of the following seed bearing parents.

Ribbon	B. 381
Ba.6032	B. 391
B.H.10 (12)	B. 606
Ba.11569	B. 663
B.374	S.C.12 (4)

A very high percentage of germination was obtained this season and from the 1,045 boxes sown, 30,213 seedlings were obtained for potting, viz:—

Seed Bearing parent	No. of Seedlings potted out	Seed Bearing Parent	No. of Seedlings potted out
Ribbon	41	B.381	105
Ba.6032	505	B.391	6,269
B.H.10 (12)	1,730	B.606	2,437
Ba.11569	10,121	B.663	4,009
B.374	3,443	S.C.12 (4)	1,553

GENETIC WORK.

REPORT OF THE ASSISTANT GENETICIST.

An outline of the experiments and tests completed with a discussion of the results.

1. Experiment to determine the value of the "Java System" of rooting canes—isolation, bagging, etc.
2. Experiment to determine the value of Sulphurous acid solution, of Ammonium Fluoride and of Hydrofluoric acid.
3. Observations on the flowering habits of different varieties.
4. "Lantern" experiments.
5. Pollen germination tests.
6. Seed germination experiments.
7. Experiment to study the germination and development of seedlings in the sun and in the shade

1. *Experiment to determine the value of the "Java System" of rooting canes—isolation, bagging, etc.*

The first work done was to determine the usefulness of the "Java System" of rooting canes, in the breeding of sugar canes, as recent reports from the Coimbatore Sugar Experiment Station, India, indicated that the method was very successful there. The plan adopted in India was to root the canes in a mixture of soil and sand contained in earthenware pots, but we have modified the method by surrounding the stalks with wooden boxes and wire netting cages (in which the soil was placed) instead of earthenware pots. On the inside of the wire netting cages sacking was placed, so as to prevent the soil from falling through. The cages and boxes were put around the stalks when the first sign of arrowing appeared and the stalks were cut at the first emergence of the arrows. They were watered once or twice a day according to the circumstances. At first, canes were treated very low down, but afterwards, it was found that it is best to tie the cage up higher on the stalk where there were no aerial roots. It was found that if the canes were cut under two weeks, the root system was generally too little developed to support the stalk when it was severed. In the beginning these stalks were cut with extensions so as to enable the lower ends of the stalk to be inserted in water. This method did not prove too successful and it was then decided to cut the stalks flush with the base of the cage (or box) and to put the cage (or box) in a tub and fill it with soil. Over a hundred cages were tried on all of the varieties which arrowed.

To isolate these arrows the stalks with the cages put in tubs were transported to Codrington Station where they were arranged at suitable distances in the field. This system proved a failure as most of the arrows were either damaged in transport or were broken off by birds. The attempted crosses with Uba therefore also came to nothing.

Thereafter canes were kept at Canefield. Some were grown under the trees, others were grown in a well-ventilated, well-lighted room, or in the palm-house, and some others were isolated in the fields where no arrowing had occurred.

On the whole, the method has not been too successful. None of the arrows ever sufficiently emerged from the last sheath, showing that the plants had received a set-back. Moreover, in the majority of cases, the arrows dwindled away and no seed was collected, some being attacked by sheath-rot. Ba. 11569 was the poorest in this respect. In one case about 120 or more seedlings were obtained from a B. 391 arrow and in another case about 100 or more seedlings from a Ba. 6032 arrow. Under ordinary conditions, however, a few hundred seedlings are obtained from an arrow of each of these two varieties.

The canes which were kept in the palm-house gave better results than those outside, probably due to the fact that the winds were too strong outside. Not many were tried in the room, but it seems that the growth is as good as outside.

One of the reasons for keeping the canes under the trees was to try the bagging of the arrows. It was thought that the temperatures ordinarily prevailing in the fields could be reduced under the shade of the trees. Some arrows were also bagged in the fields, but in both cases the high winds damaged the arrows through the swaying of the bags.

Up to the present day sugar cane breeders have not evolved any method that will give a large number of self fertilized seedlings, and the above method was tried out with a view of obtaining selfed seedlings, as in India it had given good results. However, as said above, the results for the past season are not too promising.

2. *Experiment to determine the value of sulphurous acid, of Ammonium fluoride and of Hydrofluoric acid.*

The sulphurous acid solution, which as reported by Hawaiian workers has given good results in Hawaii, was also tried out. Cane arrows are cut off with a few feet of stalk attached to them and inserted in a solution containing one part of sulphur dioxide in 2000 parts of water. At the suggestion of the Director of Science and Agriculture, Ammonium fluoride and Hydrofluoric acid of various strengths were also tried. Some canes were more resistant than others but in every case the canes died, not on account of wilting, but as a result of the harmful effects of the solution. The sulphur dioxide method was tried again with water which was first boiled, but the canes could not be induced to grow. If this method should prove successful it will be a great help in crossing in those cases where arrows are cut and brought in contact with the female parent, for water is generally used, but arrows have to be renewed very often.

3. *Observations on the flowering habits of different varieties.*

During the arrowing season an effort was made to study the differences of flowering varieties with regard to the characteristics of their arrows and the flowering habits—data which are absolutely essential as a preliminary to breeding work.

Although the arrows of the different varieties look much alike at a distance, there are nevertheless appreciable differences between the various arrows. Arrows differ with regard to size and colour of the various flower parts, the time of opening of the flowers, the order in which the flowers of a spikelet open, the number of anthers which open, the time of the first opening of the flowers while the arrow is emerging from the sheath, the fertility of the male and female parts, the amount of pollen shed and the number of seed set.

The following notes indicate the extent to which varieties differ.

Very early in the evening, about nine or ten o'clock, B.H. 10 (12) commences to open its flowers. This proceeds rapidly and by the time Ba. 11569 has started, which generally occurs a few hours afterwards, B.H. 10 (12) has shed abundant pollen. This is rather remarkable as anthers of all the other varieties seldom open or do so only sparingly, before 2 or 3 o'clock in the morning. Moreover, Ba. 11569 sheds very little pollen on the stigmas, only a very small percentage of the anthers opening and many of the stigmas do not show pollen grains at all. In spite of the apparent advantage of seed setting being in favour of B.H. 10 (12). very few seeds germinate when an arrow of B.H. 10 (12) is sown, whereas Ba. 11569 arrows give many seedlings.

Another interesting case is that of B. 417. The flowers as in B.H. 10 (12) open very early in the evening, but no pollen is shed until about 3 a.m. or so and although the stigmas are literally covered with pollen, no seedlings have been obtained. What this unfertility is due to is not known as yet, but it is hoped that something will be found out about it. If this is a case of inviability of pollen grains, we shall have in B. 417 a valuable mother for purposes of crossing. It appears that B. 381 behaves in almost exactly the same way.

The varieties which flowered at Canefield were Ba. 11569, B.417, B.391, B.381 B.472 (very little) Ba. 6032, B.H. 10 (12) and Uba. B.67 produced one arrow and B.8069 and B.6450 did not flower at all. Uba is reported to have produced an occasional seedling, but we have not been able to find any viable seed.

Another important difference between various varieties, is the time which elapses after the first appearance of the arrow, before the flowers commence to open. In Ba. 11569 and Ba. 6032 this generally occurs on the second or third day after the first emergence of the arrows, whereas in B.H. 10 (12) not under a week to ten days. The other varieties studied arrange themselves between these two extremes.

There does not seem to be any distinct relation between temperature and humidity at any time of the night and the peculiarities of the different varieties as to opening of flowers, opening of anthers, shedding of the pollen, and dropping of the anther sacs, but a few facts can be stated, and they are:—high humidity prevents anthers from bursting; in fact if the humidity is so high that dew settles on the anthers, there is practically speaking, no bursting of anthers. Anther dehiscence becomes rapid when the temperature rises above a certain limit, depending to some extent on the relative humidity of the atmosphere. The protrusion of anthers only takes place when the humidity is high. On the whole, however, the dehiscence is fastest after 6 a.m., that is, when the temperature rises above 73° or 74° Fahrenheit. Under field conditions, very few flowers open if the temperature rises above 85°, that is, after about 8.30 a.m. or so.

From the above it is apparent that unless B. 417 and B. 381 produce non-viable pollen—they do not produce any seedlings—it would be difficult to obtain any cross-fertilized seedlings. It will not be hard to effect cross pollination by bringing together arrows of two self-fertilized varieties, but to distinguish between a self-fertilized and a crossed seedling will be impossible with our present knowledge. On the other hand crosses such as between Ba. 11569 where the anthers only shed their pollen late in the morning, and varieties like B.H. 10 (12) or B. 374, where anthers shed pollen early in the night, might be possible.

4. *"Lantern" Experiments.*

A great deal of time when the canes arrowed was taken up by work with the sugar cane arrow "lanterns". These "lanterns" were devised with the hope of obtaining a means of isolating cane arrows so as to produce self-fertilized seedlings. Early in the arrowing season, three "lanterns" were put over each of the varieties Ba. 11569, B.H. 10 (12), B. 417 and Uba, only one arrow being enclosed in a "lantern". As was expected, from what has been stated, no seedlings were obtained from Uba and B. 417. From B.H. 10 (12) and Ba. 11569 arrows, only very few seedlings germinated. Later in the season 27 "lanterns" were again put on arrows of Ba. 11569, B.H. 10 (12) and Ba. 6032. Again the Ba. 11569 and B.H. 10 (12) arrows which were left untouched for purposes of self fertilization, produced very few seeds. It should be stated here that several of the arrows in the 27 "lanterns" were not reaped because they were destroyed by sheath-rot.

The object with which the second part of the "lantern" work was carried out, was to find out whether any method could be developed which could be used to establish cross pollination. A member of the Department had suggested the use of a jet of air to blow off the anthers and this was tried out. For this purpose a "Flit" was used, but it was only possible to blow off a part of the anthers and it means that the operation would have to be continued for hours, as anthers protruded for hours on a stretch, starting about midnight in the "lanterns". Apparently such a method is not going to be of much use. The camel hair brush was found to be successful, but in this case the stigmas appeared to receive slight injuries.

As a last resort, a spray of water was tried. For this work the "Flit" was found most useful. The idea here was to cover the spikelets and also the protruded anthers with a fine spray of water. This procedure, it was believed—and observations in the fields at night have confirmed this view—would prevent the anthers from opening and therefore exclude the chances of self pollination so that cross pollination may be attempted. The anthers were in this case prevented from opening, but it was found that as soon as "flitting" was discontinued, more anthers emerged and these soon opened to shed their pollen on the stigmas. Anthers come out as long as "flitting" is continued and when "flitting" is stopped, they shed their pollen. Here again it meant that work had to be done from midnight when the flowers started to open and had to be continued almost indefinitely from what has been said immediately above. Naturally under

such conditions crossing was out of the question, for pollen on the wet stigmas is probably not going to germinate and even if it does germinate, it is liable to be washed off by the succeeding "flitting".

This method it appears can only be tried out with a few spikes on an arrow. In such a case the "flitting" will have to be continued until all flowers have opened and have dropped their anthers, or the anthers may be picked off by means of forceps and all the stigmas examined by a hand lens, in order that those which have any pollen grains on them may be picked off. This method seems slow and drastic, and a large number of crossed seed will certainly not be obtained, but considering that one worker (in Cuba) has reported many crosses during the season by the method of castration, it may be worth trying in special cases. Difficulty may, however be experienced in getting the introduced pollen to germinate in the "lantern."

In these last "lanterns" it was again found that Ba. 11569 and B.H. 10 (12) produce practically no seeds inside the "lanterns." It was found that in Ba. 11569, on account of the flowering characteristics, that the shedding of pollen could almost be completely controlled by the above method and that it lends itself to crossing with other varieties. However, whether the pollen grains of other varieties will germinate inside the "lanterns" is another question.

A continual wetting of the arrows has produced a sort of rot in some instances.

It is of interest to note that Ba. 6032 has done very well in the "lantern" and with sufficient care one arrow ought to give a few hundred seedlings. So good is the viability of the pollen that in spite of the continual spraying of arrows with water, a few seeds have set.

Some crossing was attempted in the "lanterns" but, on account of the difficulties already pointed out and also on account of the fact that pollen was not available, the late arrows already maturing at that time, there are no results in this respect. The "skirts" of the "lanterns", which were originally intended to be tied around the canes so as to prevent foreign pollen from gaining access, were not tied around the cane stalks, but were left open, as it was thought that this would improve ventilation—as it has undoubtedly done—and that there would be very little likelihood of contamination with foreign pollen.

The failure of Ba. 11569 and B.H. 10 (12) to produce viable seeds in the "lanterns" may be due to one or more of several factors:—

(1) Ineffectualness of the pollen grains;

(2) The absence of pollen grains on the stigmas.

It is certain that Ba. 11569 produces a fair percentage of viable pollen so that if it was shed on the stigmas, very few germinated.

(3) That the stigmas were not receptive. But this is very unlikely for the stigmas are much less influenced by temperature than the germination of pollen grains. What the other varieties will do in the "lanterns" is impossible to predict under the circumstances considering that of the four varieties tried (Uba not included), one was infertile, the other is only partially fertile for it produces very few seeds under field conditions and the third, although self fertile, produces only a small percentage of open anthers. Only Ba. 6032 was a normal variety.

During the course of this work the temperatures on the wet and dry bulb thermometers were taken for one or two nights, and they showed that during the night the reading of the dry bulb thermometer in the "lanterns" was always higher than that of the atmosphere outside. Before 6 a.m. this difference varies from a fraction of a degree to one or two degrees. However from about 6 a.m., that is, about sunrise, the temperature (dry bulb) in the "lanterns" rises rapidly so that after about 2 hours the difference may be as much as 20 degrees or more.

In the "lanterns" which were not "flitted" the humidity was generally higher than outside. On one night only 1 out of 8 hourly readings—starting from 1.15 a.m.—showed higher humidity inside. In the case of the "lanterns" which were "flitted' the humidity inside the "lanterns" was sometimes higher than outside, probably corresponding with the times the arrows were "flitted."

5. *Pollen Germination Tests.*

The percentage of viable pollen produced by sugar cane varieties varies a lot from one variety to another. In Java the iodine method is still used for testing

the pollen of the various varieties, but this method is simply a chemical test and it is obvious that no method is reliable, unless it takes into account the numbers which actually germinate. This method was not tested out, but the "Badami" method as described by Barber was tried out but was not found satisfactory. A few small pollen tubes were occasionally observed but these might have been pollen grains which actually germinated on the stigmas and were just transferred to the cover slip when the arrows were shaken to obtain the pollen for the test.

Two papers have recently been published in Hawaii recording the results of work done in this particular line and it is hoped that their methods will be more satisfactory.

Various varieties were tested but in all the cases the number of pollen grains that showed tubes were few and they were short. From the number of seedlings produced we now know that most of the varieties tested were fairly fertile,—so that the method under the conditions of our test cannot be proclaimed satisfactory. It was therefore impossible to study the fertility of pollen throughout the season and for different sections.

In addition to this method a few sugars of various strengths were tried; some were kept in the dark, others in the light, but no germination could be secured. All arrows used in this work had of course to be transported from Canefield to the Laboratory.

An attempt was made to obtain some information with regard to the number of pollen grains that are blown about in the field. For this purpose a pane of glass with a thin film of gloy was used and this was put up in the field; in one case such a pane of glass was put up vertically about 1½ feet away from an arrow, on the leeward side. After 24 hours counts showed a few hundred pollen grains per square inch. When put about 6 feet away from an arrow there were still about 30 or 40 pollen grains per square inch of pane. At the time these observations were made there were very few arrows in the field.

6. *Seed Germination Experiments.*

During the season 1925-26 very few seedlings were raised and as this caused some anxiety and was thought to be due to soil conditions, several mixtures were tried to germinate seed in. Various proportions of sifted horse dung and sand, sifted horse dung and sifted surface soil (mould) as well as pure horse dung, pure sand, pure soil and filter press mud were employed. Except in the case of the filter press mud the seed after it was sown on the various materials, was (1) either lightly covered with the same material as used for germination or (2) was covered with sand or (3) was just pressed down firmly. For each treatment there were two boxes, the one being watered twice daily and the other four times daily. However, as these boxes were put in the shade the frequency of watering did not seem to have any effect on the percentage of germination.

Except for the filter press mud, there was very little difference in the germination of the seedlings in the various media, even in the pure sand the germination was as good as in any and the seedlings were very healthy for several weeks after germination. Neither was there any marked difference between covering the fluff and pressing it down.

On the whole it seemed that the pure surface soil (mould) which is the material that has always been used on the island for germinating the fluff was about the best, or at least, as good as any of the materials tried. In the case of the sifted horse dung plus sifted mould and sifted horse dung plus sand, the seedlings lost their green colour shortly after germination and many turned white, especially where about two thirds of the material consisted of horse dung. Charcoal and soil was tried in a casual way at the suggestion of someone in the Department and it would appear that the charcoal has some stimulating effect on the seedlings, giving them a somewhat robust appearance.

The use of mould will be continued perhaps with the addition of charcoal, unless on further trial it proves itself to be a stimulant to the very young seedlings. What the cause was of the poor germination during the previous season is unknown; it might have been due to the interference of climatological conditions at the time the canes were flowering.

It appears that there is some difference between the germination of arrows from various parts of the Island, but it is also suspected that there is a difference between the fertility of the arrows of plant canes and of ratoons. To test this out arrows were collected from various parts of the Island and from various fields but the collection has not been complete enough to draw any conclusions. The same applies to the case in which it was intended to study the fertility of arrows throughout the season. That is, to determine at what time of the season the most viable seedlings are produced. Should we be able to find any difference in the viability of pollen in any part of the Island, it might give opportunities to secure crosses.

At present little is known about the conditions of temperature, light, moisture, etc. under which sugar cane seeds germinate best, of what system of drying the arrows after they have been picked, will give the most viable seeds or what method of storing the fluff will give the most seed germination. The practice in the different sugar cane countries where sugar cane seedlings are raised, differs very much and it seems that information on these points would be most useful.

In the preliminary test of the longevity or the duration of viability of sugar cane seeds, it was observed that the maximum germination was obtained not long after the arrow was picked, thereafter the germination falls off very rapidly. That is, arrows should be sown out as soon as the fluff is completely dry.

What we need at present is a method for storing fluff for a few months; something that will protect the viability of the seeds. Then it should be possible to sow out seedlings later than is done at present, that is, when the rains have set in, and in this way the necessity for irrigating seedlings after they have been planted out in the fields, would be obviated; or more seedlings may be planted out at stations where irrigation water is not available, but at a time when the rains have set in.

It has been found that germination of seeds and early growth of seedlings in boxes put out in the sun, but protected from the direct rays of the sun by means of light cloth covers, is much better than boxes similarly situated but covered with glass. In fact in the latter case the seedlings when they appeared above the sand, both sand and soil having been used, were entirely white and withered away.

7. *Experiments to study the Germination and Development of seedlings in the sun and in the shade.*

Almost half of all the boxes which were sown this season were put in partial shade in the palm-house. The rest as is the general practice locally, were put in the sun where they were watered twice daily with a watering can with a rose. Germination appeared to be no better inside the palm-house than outside in the sun. As the seedlings grew older the differences became more marked. Those grown in the palm-house behaved like plants ordinarily do when planted out under shade. There was no differentiation; almost all were exactly the same green colour; showed the same type of leaf and habit. All the seedlings of the same variety and even different varieties, sown out on the same day, were remarkably uniform. Except for a slight variation in size corresponding to the time of germination, there was no distinction on which selection could be based.

The plants in the sun were remarkably different. Almost immediately after germination differentiation seemed to set in and soon after every plant appeared to be a distinct individual, separate from other individuals in the box. Differences in colour, robustness, habit, roots, size and leaf width are very conspicuous. The root development and line of growth were not much superior to those of the same seedlings under partial shade and many seedlings were naturally eliminated.

After a few weeks the boxes in the partial shade were put out in the sun outright, without first accustoming the plants to the change. Not many seedlings died, others suffered a good deal, but after a few weeks a remarkable change was noticeable and the condition now corresponded to the condition of

the seedlings which were in the sun from the start. Some were green, others were red; some were thin, others were robust, but they were much behind the seedlings of the same age germinated and grown in the open.

An examination was made of the rooting habits of young seedlings grown from the various varieties. As was found by other workers, it was noticed that there is some difference between the various batches of young seedlings. For instance, B.374 seedlings produced a few long lateral roots which do not branch as much as the denser primary root systems of B.663 or B.606. However, it must be stated that there is a gradual transition and that the distinction is of very great importance in connexion with future breeding work or with regard to the ratooning and capabilities of seedlings.

Later on a further attempt will be made to determine whether those early characteristics with respect to the root systems are persistent. Such information is of very great importance in connexion with future breeding work or with regard to the ratooning and capabilities of seedlings.

L. C. C. LIEBENBERG,
March 29th, 1927.

GROWTH IN POTS.

From the boxes the seedlings were pricked out into six inch pots during December 1926 and January 1927.

In order to secure equality both in time and in amount of water added to each pot when watering this operation is again being carried out in "Pot Immersion Cisterns" (described in the Department's Report on the Sugar Cane Experiments 1924-1926.) As the "Cisterns" are only capable of holding 20,000 pots, the remainder 10,213 were being watered by hand as in the years previous to the institution of the "Cisterns."

In April—May 1927 two thousand eight hundred and ninety-six (2,896) seedlings were selected and planted out in a field lined 5′ x 5′ at Codrington, where they are being grown under irrigation. Later in the year at the beginning of the rainy season 425 seedlings were selected and planted out in a field at Dodds where they are being grown without irrigation.

Of the total number of seedlings planted out, 180 were specially selected and arranged according to the scheme of selection suggested by R. L. Davis at the U.S.A. Department of Agriculture Experiment Station, Mayaguez, Porto Rico. The results obtained on reaping the group of seedlings selected according to this system and planted out in 1926 are totally different from the results expected according to the scheme. It would therefore appear that the scheme does not serve the desired purpose, namely, that there is a correlation between the final weight and length of the mature stools and the number of suckers and total length of shoot at two and a half to three and a half months old. The scheme is however being given a further trial.

FIRST YEAR SEEDLINGS.

In April—June 1926, 1,559 seedlings growing in 6″ pots were planted out in a field lined 5′ x 5′ at Codrington where they were grown under irrigation.

Similarly at the same time 650 seedlings were planted out in a field at Dodds where they were grown without irrigation.

The 360 first year seedlings planted out at Codrington in April 1926 according to R. L. Davis's scheme were reaped on 22nd to 24th of February, 1927. The results obtained have already been referred to. The remainder of the first year seedlings were reaped in the last week of May and the first week of June 1927.

In seeking to decide on a method for sampling each stool into two portions, (1) for milling and determining the relative richness of the juice, and (2) for a supply of cuttings for planting out, four methods of sampling were tested, namely,

(a) Dividing each stalk into top third and bottom two-thirds and milling the latter.
(b) Dividing each stalk into top half and bottom half and milling the latter.

(c) Dividing the n stalks of each stool into 2 half bundles each of $n/2$ stalks, mechanically that is, taking the stalks as they present themselves, from the bundle and throwing them alternately on the one side and the other to form 2 half bundles.

(d) Dividing the bundle of stalks into 2 half bundles in such a manner that for every stalk in one half bundle there is a closely similar stalk in the other half bundle.

Methods (b) and (d) gave equally correct results and more correct than method (a). And method (d) has been adopted, because it leaves a half bundle of canes representative of the stool, for the further observations which are made after milling.

The following results obtained with the first year seedlings are of interest.

GROWN UNDER IRRIGATION AT CODRINGTON.

Seed Bearing Parent.	Stools Weighing.		No. of Stools.
B. 6450	Between	0 —15	22
		16—20	17
		21—30	44
		31—40	32
		41—50	30
		51—60	20
		61—70	14
		71—80	2
		81—90	2
		91—100	3
	Over	100	1
Ba. 6032	Between	0 —15	5
		16—20	1
		21—30	6
		31—40	1
		41—50	1
		51—60	1
		61—70	1
		71—80	1
		81—90	1
		91—100	none
	Over	100	1 (140 lb.)
Ba. 11569	Between	0 —15	54
		16—20	41
		21—30	59
		31—40	67
		41—50	57
		51—60	59
		61—70	38
		71—80	14
		81—90	11
		91—100	5
	Over	100	3
B. H. 10 (12)	Between	0 —15	2
		16—20	none
		21—30	3
		31—40	3
		41—50	6
		51—60	5
		61—70	3
		71—80	none
		81—90	2
		91—100	1
	Over	100	none

FIRST YEAR SEEDLINGS WHICH WERE ANALYSED.—*Continued.*

GROWN AT CODRINGTON UNDER IRRIGATION.

Seed Bearing Parent.	lb. per gallon Sacch. in juice.		No. of Stools.
Ba. 11569	Below	1.00	none
		1.00—1.50	41
		1.51—1.75	107
		1.76—2.00	81
	Above	2.00	7
B. 374	Below	1.00	none
		1.00—1.50	10
		1.51—1.75	5
		1.76—2.00	4
	Above	2.00	none.
B. 391	Below	1.00	1
		1.00—1.50	31
		1.51—1.75	51
		1.76—2.00	31
	Above	2.00	1
B. 405	Below	1.00	none
		1.00—1.50	1
		1.51—1.75	none
		1.76—2.00	1
	Above	2.00	none
B. 417	Below	1.00	none
		1.00—1.50	3
		1.51—1.75	7
		1.76—2.00	none
	Above	2.00	„
S.C. 12 (4)	Below	1.00	none
		1.00—1.50	4
		1.51—1.75	3
		1.76—2.00	1
	Above	2.00	none

FIRST YEAR SEEDLINGS WHICH WERE ANALYSED.

GROWN AT DODDS WITHOUT IRRIGATION.

Seed Bearing Parent	lb. per gallon Sacch. in juice.		No. of Stools.
B. 6450	Below	1.00	none
		1.00—1.50	8
		1.51—1.75	3
		1.76—2.00	1
	Above	2.00	none
Ba. 6032	Below	1.00	none
		1.00—1.50	7
		1.51—1.75	2
		1.76—2.00	none
	Above	2.00	2
Ba. 11569	Below	1.00	none
		1.00—1.50	33
		1.51—1.75	28
		1.76—2.00	5
	Above	2.00	1

SECOND YEAR SEEDLINGS.

Of the First Year Seedlings reaped at Codrington and Dodds a number were selected and planted out as Second Year Seedlings in a field at Codrington where they are being grown under irrigation. The following table gives certain results:—

SECOND YEAR SEEDLINGS.

Seed Bearing Parent.	Final No. of Seedling.	No. of Canes per Stool.	Canes lb. per Stool.	Sacch. lb. per gallon.
B.6450	B (27) 13	43	95	1.82
,,	B (27) 14	21	97	1.88
,,	B (27) 15	19	97	1.34
,,	B (27) 16	15	103	1.18
,,	B (27) 17	20	64	1.94
,,	B (27) 22	31	85	1.54
Ba.6032	B (27) 32	31	140	1.16
B.H. 10 (12)	B (27) 31	24	93	1.63
,,	B (27) 36	14	85	1.52
Ba.11569	B (27) 1	20	82	1.88
,,	B (27) 2	42	93	1.98
,,	B (27) 3	23	106	1.47
,,	B (27) 4	27	107	1.54
,,	B (27) 5	20	78	2.01
,,	B (27) 6	15	95	1.72
,,	B (27) 7	23	105	1.81
,,	B (27) 8	42	97	1.81
,,	B (27) 9	21	80	1.94
,,	B (27) 10	25	76	1.81
,,	B (27) 11	19	87	1.98
,,	B (27) 12	18	83	1.93
,,	B (27) 37	..	82	1.85
,,	B (27) 38		80	1.76
,,	B (27) 39	16	48	1.50
,,	B (27) 40	12	25	1.81
,,	B (27) 41	20	42	1.58
,,	B (27) 42	22	34	1.63
,,	B (27) 43	36	50	1.26
,,	B (27) 44	14	35	1.79
,,	B (27) 45	21	48	1.30
,,	B (27) 46	13	35	2.01
,,	B (27) 47	24	40	1.69
,,	B (27) 48	15	41	1.69
,,	B (27) 49	15	36	1.72
,,	B (27) 50	20	62	1.20
,,	B (27) 51	22	74	1.46
Ba. 11569	B (27) 52	12	34	1.98
,,	B (27) 53	28	100	1.51
B. 374	B (27) 23	24	98	1.39
,,	B (27) 24	23	97	1.55
,,	B (27) 25	10	52	1.92
,,	B (27) 35	27	88	1.59
B. 391	B (27) 18	23	95	1.93
,,	B (27) 19	24	83	2.06
,,	B (27) 20	17	86	1.76
,,	B (27) 21	27	85	1.77
,,	B (27) 34	17	61	1.59

GROWN AT CODRINGTON UNDER IRRIGATION.—(*Contd.*)

Seed Bearing Parent.	Stools Weighing.		No. of Stools.
B. 374	Between	0 —15	5
		16—20	6
		21—30	4
		31—40	4
		41—50	3
		51—60	4
		61—70	2
		71—80	1
		81—90	2
		91—100	2
	Over	100	none
B. 391	Between	0 —15	37
		16—20	28
		21—30	37
		31—40	46
		41—50	30
		51—60	16
		61—70	9
		71—80	4
		81—90	5
		91—100	1
	Over	100	none
B. 405	Between	0 —15	4
		16—20	3
		21—30	none
		31—40	,,
		41—50	1
		51—60	none
		61—70	1
		71—80	none
		81—90	,,
		91—100	,,
	Over	100	,,
B. 417	Between	0 —15	none
		16—20	,,
		21—30	,,
		31—40	4
		41—50	1
		51—60	none
		61—70	1
		71—80	1
		81—90	1
		91—100	none
	Over	100	2
S. C. 12 (4)	Between	0 —15	1
		16—20	none
		21—30	1
		31—40	3
		41—50	1
		51—60	1
		61—70	none
		71—80	,,
		81—90	,,
		91—100	1
	Over	100	none

GROWN AT DODDS WITHOUT IRRIGATION.

Seed Bearing Parent.	Stools Weighing.		No. of Stools.
B. 6450	Between	0 —15	122
		16—20	19
		21—30	18
		31—40	6
	Over	40	none
Ba. 6032	Between	0 —15	83
		16—20	10
		21—30	10
		31—40	2
		41—50	1
		51—60	none
	Over	60	„
Ba. 11569	Between	0 —15	151
		16—20	62
		21—30	82
		31—40	36
		41—50	8
		51—60	none
		61—70	2
		71—80	none
	Over	80	„
B. 374	Between	0 —15	1
		16—20	1
	Over	20	none
B. 391	Between	0 —15	11
		16—20	1
		21—30	1
	Over	30	none

FIRST YEAR SEEDLINGS WHICH WERE ANALYSED.

GROWN AT CODRINGTON UNDER IRRIGATION.

Seed Bearing Parent.	lb. per gallon Sacch. in juice.		No. of Stools.
B. 6450	Below	1.00	1
		1.00—1.50	50
		1.51—1.75	42
		1.76—2.00	25
	Above	2.00	1
Ba. 6032	Below	1.00	1
		1.00—1.50	6
		1.51—1.75	2
		1.76—2.00	none
	Above	2.00	„
B.H. 10 (12)	Below	1.00	none
		1.00—1.50	13
		1.51—1.75	9
		1.76—2.00	1
	Above	2.00	none

SECOND YEAR SEEDLINGS.—*Continued.*

Seed Bearing Parent.	Final No. of Seedling.	No. of Canes per Stool.	Canes lb. per Stool.	Sacch lb. per gallon.
B. 405	B (27) 30	13	64	1.75
B. 417	B (27) 26	25	110	1.72
..	B (27) 27	19	109	1.23
S.C. 12 (4)	B (27) 33	23	91	1.79
B.H. 10 (12) x B. 417	B (27) 28	30	86	1.58
	B (27) 29	17	59	2.08

36 cuttings of each variety selected for replanting as Second Year Seedlings were distributed in three plots of 12 holes each situated in different parts of the field.

THIRD YEAR SEEDLINGS.

Of the 39 varieties of 2nd year seedlings planted at Codrington in April 1926 and grown under irrigation, 7 varieties were cut for plants in November 1926 and planted out at Dodds, and 36 varieties were reaped, milled and analysed in May 1927. Of the latter 3 varieties were replanted as 3rd year seedlings under irrigation at Codrington in May 1927. The results of the yields and analyses of these are shown in Tables IV.A. and IV.B.

FOURTH AND FIFTH YEAR SEEDLINGS.

The varieties in these groups will be replaced for convenience into the group of 3rd year seedlings of the new series, referred to in the previous section.

Of the 4th year seedlings planted at Codrington in April 1926, 12 varieties were cut for plants in November 1926 and replanted as "3rd year" seedlings. 12 varieties were reaped, milled and analysed in April 1927. Of the latter, 2 varieties were selected for replanting as "3rd year" seedlings under irrigation at Codrington in May—June 1927. The results of the yields and analyses of these are shown in Tables V.A. and V.B.

Of the 5th year seedlings planted at Codrington in March 1926, 9 varieties were cut for plants in November 1926, and replanted as "3rd year" seedlings. 15 varieties were reaped, milled and analysed in May 1927. Of the latter, 9 varieties were selected for replanting as "3rd year" seedlings under irrigation at Codrington in May 1927. The results of the yields and analyses of these are shown in Tables VI.A. and VI.B.

17 of the varieties of 5th year seedlings were also planted at Dodds in December 1925, and grown without irrigation. The greater portion of these plots was cut for plants in November 1926. The results of yields and analyses of the few that remained for reaping in May 1927 are given in Tables VII.A. and VII.B.

NEW SELECT SEEDLINGS.

Of the 5th year seedling varieties planted out at Codrington and Dodds in March 1926, 6 varieties were selected for replanting at the Select Seedling Stations in November—December 1926, and a portion of their plots was cut for plants. The results of yields and analyses of these varieties reaped in May 1927 are given in Tables VIII.A. and VIII.B.

SELECT SEEDLINGS.

Select seedlings were grown at 22 stations 13 of them being black soil plantations, 8 being red soil plantations and one in the Scotland District, and were reaped, milled and analysed and the results are given in Tables IX-XXIV.

The Tables of averages enables the reader to find out readily the relative composition of the juice of the different varieties and the relative field and factory results are also given; as well as Tables showing the limits of variation in the richness of the expressed juice. The milling in every case, was carried out with a small three roller mill driven by an oil engine.

RAINFALL

AT

SELECT SEEDLING STATIONS

FROM

December 1925 to March 1927.

TAB

RAINFALL AT SELECT SEEDLING STATIONS

Stations.	Height above Sea Level	December 1925.		January 1926.		February 1926.		March 1926.		April 1926.		May 1926.		June 1926.		July. 1926.	
		Days	Inches	Days	Inches	Days	Inches	Days	Inches	Days	Inches	Days	Inches	Days	Inches	Days	Inches
Dodds ...	210	5	·56	17	2·56	9	1·10	8	·84	4	·14	4	·23	16	4·27	17	2·97
Graeme Hall ...	...	...	...	19	2·01	7	·61	4	·22	4	·11	7	·51	16	3·18	13	4·04
Coverley	254	8	·94	9	2·07	7	1·25	8	·93	3	·16	7	·64	12	4·76	8	3·21
Carrington...	110	7	·71	18	3·20	8	1·63	12	1·44	4	·28	4	·34	13	4·91	18	4·07
Hampton ...	103	8	·79	14	2·83	7	1·18	6	·89	3	·19	3	·18	13	4·01	11	3·57
Brighton ...	271	7	1·03	14	2·97	8	1·48	7	·95	nil		2	·40	14	5·02	11	3·23
Waterford ...	186	10	1·05	19	2·73	9	1·03	7	·53	1	·10	2	·26	13	4·67	10	2·36
Warleigh ...	...	...	...	22	5·10	11	2·33	10	1·65	4	·94	5	1·09	12	4·40	16	4·84
Pickerings ...	71	9	1·36	15	4·06	9	1·86	11	2·21	5	·27	5	·91	10	4·65	10	2·48
Sandy Lane ...	...	...	...	16	2·41	11	1·03	7	1·17	4	·16	3	·18	13	3·40	20	6·29
Hannays ...	...	7	1·35	16	3·04	7	1·52	6	1·09	2	·11	3	·32	11	4·96	13	3·66
Ridgeway ...	...	7	1·68	17	3·44	11	2·10	10	2·11	5	·68	3	·25	10	4·09	17	7·29
Newcastle	...	9	1·58	20	3·14	11	1·60	8	1·42	5	·72	7	1·26	12	6·82	14	3·12
Lears ...	...	7	1·19	19	4·84	12	1·60	13	1·53	3	·36	5	·43	14	4·93	17	5·81
Clifton Hall	792	7	1·64	18	2·65	8	1·57	9	1·78	3	·62	5	1·32	8	6·29	10	2·89
Lemon Arbor	720	9	1·87	18	4·46	11	2·18	7	2·35	6	·50	5	·75	10	6·93	14	4·01
Vaucluse ..	731	9	1·85	20	3·96	13	1·67	9	1·60	6	·50	7	·75	15	5·59	20	6·58
Blackmans...	...	13	2·94	21	5·57	16	2·75	15	2·65	7	1·10	9	1·54	14	8·08	18	4·65
Lion Castle..	...	20	2·85	26	4·95	18	2·74	18	2·86	9	·95	14	1·16	18	6·82	26	6·81
Mount Wilton ..	...	13	2·08	23	5·50	13	2·74	12	2·38	7	1·05	8	1·03	13	7·18	16	4·41

LE III.

FROM DECEMBER 1925 TO MARCH 1927.

August 1926		September 1926		October 1926		November 1926		December 1926		January 1927		February 1927		March 1927		Total.	
Days	Inches	Days	Inches	Days	Inches	Days	Inches	Days	Inches	Days	Inches	Days	Inches	Days	Inches	Days	Inches
15	4·27	16	4·49	21	7·36	14	11·07	6	1·83	17	3·12	7	1·05	15	4·72	191	50·58
13	4·81	8	3·28	16	7·64	15	8·65	11	2·33	11	2·39	7	1·64	14	2·16	165	43·58
15	5·75	12	4·89	18	8·83	17	9·31	12	2·27	20	3·22	8	1·08	12	2·90	176	52·31
15	6·10	14	4·61	19	9·30	17	12·43	14	2·72	16	4·16	12	1·82	17	4·15	208	61·87
14	5·53	9	4·12	18	8·57	19	12·39	11	2·68	14	3·53	5	1·64	13	4·38	158	56·74
14	5·09	11	4·38	16	8·85	11	10·67	6	3·18	13	4·71	7	1·40	11	3·25	152	56·61
14	5·30	12	4·02	14	9·21	17	10·13	7	2·01	19	3·47	9	·76	13	2·93	176	50·54
20	11·49	17	10·44	20	9·63	14	10·98	9	2·96	15	4·51	6	1·48	10	3·54	191	75·38
17	11·00	17	5·44	21	7·65	20	9·25	9	2·49	13	2·80	7	2·10	14	2·91	192	61·44
21	6·06	16	5·75	19	12·80	22	8·70	10	1·80	18	3·00	14	1·26	11	2·06	205	56·07
15	6·11	14	5·04	13	9·47	13	9·26	8	3·56	12	3·71	5	1·84	11	3·27	156	58·31
16	6·89	16	6·66	17	13·41	17	10·18	13	3·40	18	4·21	10	1·52	19	3·97	236	71·91
21	5·95	13	5·69	21	7·07	19	12·01	12	2·70	17	2·21	9	·63	14	3·51	212	59·43
16	7·11	10	6·19	15	10·48	16	9·41	7	2·77	14	5·09	8	1·88	18	4·38	197	67·50
13	5·22	9	4·48	13	8·27	15	12·10	9	3·32	13	3·54	4	·77	9	4·51	153	60·97
18	6·49	11	7·15	18	10·54	15	11·00	11	4·68	13	3·67	9	1·54	12	5·42	187	93·54
25	7·72	15	7·88	22	14·03	20	13·97	14	4·58	21	4·37	12	2·26	18	4·31	246	81·62
20	8·60	16	7·48	24	11·95	21	12·44	14	6·20	20	4·79	9	1·82	16	5·09	253	87·65
28	10·16	22	10·90	27	11·99	25	15·84	17	5·82	24	5·19	17	1·16	22	5·01	331	95·24
20	8·52	18	9·92	21	8·20	18	12·00	13	4·08	19	4·58	11	1·34	22	5·07	227	80·58

TABLE IV A.—THIRD YEAR SEEDLINGS REPLANTED AT CODRINGTON IN 1927.

FIELD AND FACTORY RESULTS.

Name of Variety.	Number of canes per stool.	Per cent by number of rotten canes.	Tons per acre.		Expression by mill.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.		Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
							lb. per gallon.	lb. per acre.			
B. (26) 20	14	6·08	30·94	3·27	65·00	19·6	1·85	7,737	No megass	analysis.	...
B. (26) 612	13	5·42	30·98	6·91	62·00	18·4	1·70	6,822	12·98	14·31	9,007
B. (26) 900	20	3·93	26·44	6·02	59·00	19·6	1·85	6,001	No megass	analysis.	...

TABLE IV B.—THIRD YEAR SEEDLINGS REPLANTED AT CODRINGTON IN 1927.

COMPOSITION OF JUICE.

Name of Variety.	Extraction per cent. by mill.	Degree Brix.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
B. (26) 20	65·00	19·6	80·41	17·17	·80	1·62	87·7
B. (26) 612	62·00	18·4	81·62	15·86	·77	1·75	86·3
B. (26) 900	59·00	19·6	80·41	17·17	·64	1·78	87·7

TABLE V. A.—FOURTH YEAR SEEDLINGS REPLANTED AS "THIRD YEAR" SEEDLINGS AT CODRINGTON IN MAY 1927.

FIELD AND FACTORY RESULTS.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.		Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
							lb. per gallon.	lb. per acre.			
B. 874	16	2·64	41·22	6·50	61·00	19·4	1·91	9,992	14·07	15·73	12,990
B. 880	14	None.	41·71	6·22	63·00	19·2	1·91	10,453	No megass analysis.		

TABLE V. B.—FOURTH YEAR SEEDLINGS REPLANTED AS "THIRD YEAR," SEEDLINGS AT CODRINGTON IN MAY 1927.

COMPOSITION OF JUICE.

Name of Variety.	Extraction per cent. by mill.	Degree Brix.	Water.	Saccharose.	Glucose.	Other Substance.	Quotient of Purity.
B. 874	61·00	19·4	80·58	17·74	·59	1·09	91·4
B. 880	63·00	19·2	80·75	17·76	·80	·69	92·3

TABLE VI. A.—FIFTH YEAR SEEDLINGS PLANTED AT DODDS IN DECEMBER 1925 AND REAPED IN MAY 1927.
FIELD AND FACTORY RESULTS.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.		Brix.	Saccharose		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
							lb. per gallon.	lb. per acre.			
B 689	11	None.	*55·06	4·15	67·00	19·0	1·82	13,993	14·29	10·23	17,623
B. 690	13	·51	34·48	2·85	61·00	21·4	2·05	8,898	No	megass an	alysis.
B. 691	14	·47	38·88	5·70	65·50	19·8	1·88	9,947	do		do.
B. 692	14	·95	62·21	4·93	67·00	19·6	1·69	14,647	13·37	11·88	18,632
B. 693	All	cut for	plants		...	...	..	..	...	...	...
B. 694		do.	do.		...	...	...	...	...	...	...
B. 695	13	None.	32·27	6·61	64·50	18·8	1·90	8,187	No	megass an	alysis.
B. 697	12	None.	45·78	3·89	66·50	19·8	1·85	11,700	do		do.
B. 699	15	3·11	55·47	4·67	64·00	17·8	1·61	11,973	12·50	12·48	15,532
B. 700	14	None.	51·33	3·78	65·00	18·8	1·69	11,761	No	negass an	alysis.
B. 702	15	None.	51·84	3·63	63·50	19·2	1·74	11,929	12·88	13·26	14,958
B. 703	13	8·53	57·29	3·89	66·00	18·0	1·54	12,186	12·38	10·65	15,886
B. 704	13	None.	42·25	4·15	58·00	21·8	2·05	10,353	No	negass an	alysis.
B. 705	17	2·42	51·84	3·91	66·00	19·4	1·82	12,958	13·96	12·35	16,212
B. 706	8	3·25	48·81	2·13	66·00	19·6	1·76	11,795	13·49	13·60	14,757
B. 708	10	·61	31·11	3·37	66·00	19·0	1·76	7,531	No	negass an	alysis.
B. 724	8	None.	31·50	5·83	63·50	21·4	2·13	8,723	15·82	14·55	11,161
B. 726											

*Tonnage calculated from weight of 15 stools only, except in cases of the varieties B. 695 and B. 726 of which tonnage was calculated from 10 stools only. A considerable error is therefore expected.

TABLE VI. B.—FIFTH YEAR SEEDLINGS REAPED AT DODDS IN MAY, 1927.
COMPOSITION OF JUICE.

Name of Variety.	Extraction per cent by mill.	Degree Brix.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
B. 689	67 00	19·0	81·02	16·93	·69	1·36	89·2
B. 690	61·00	21·4	78·62	18·89	·76	1·73	88 4
B. 691	65·30	19·8	80·15	17·44	·83	1·58	87 8
B. 692	67·00	19·6	80·41	15·69	1·01	2·89	80·1
B. 693		All	cut for	plants.			
B. 694			do.	do.			
B. 695	64·00	18·8	81·19	17·69	·97	·15	94·1
B. 697	66·50	19·8	80·15	17·16	·75	1·94	86·5
B. 699	64·00	17·8	82·23	15·06	·80	1·91	84·7
B. 700	65·00	18·8	81·19	15·74	·89	2·18	83·7
B. 702	63·50	19·2	80·75	16·18	1·01	2·06	84·1
B. 703	66·00	18·0	81·97	14·39	1·02	2·62	79·8
B. 704	58·00	21·8	78·20	18·86	·72	2·22	86·5
B. 706	36·00	19·4	80·58	16·91	·77	1·74	87·1
B. 708	66·00	19·6	80·41	16·34	1·10	2·15	83·4
B. 724	66·00	19·0	81·02	16·38	·97	1·63	86·3
B. 726	63·00	21·4	78·62	19·63	·96	1·79	91·8

TABLE VII A.—FIFTH YEAR SEEDLINGS PLANTED AT CODRINGTON IN MAY 1927.
FIELD AND FACTORY RESULTS.

Name of Variety.	Number of canes per stool.	Per cent by number of rotten canes.	Tons per acre.		Expression by mill.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.		Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
							lb. per gallon.	lb. per acre.			
B· 705	16	7·07	35·77	5·44	64·00	20·2	1·99	9,449	14·93	11·28	11,963
B· 725	17	6·04	34·92	4·16	61·00	19·4	1·86	8,244	14·62	14·43	11,435
B· 727	13	7·38	35·98	4·67	64·50	21·0	2·08	9,978	15·77	12·19	12,708
B· 750	15	none	36·65	8·59	62·00	21·2	2·08	9,762	15·10	13·68	12,395
B· 763	15	8·46	41·71	6·01	65·00	20·8	2·07	11,612	16·28	13·30	15,211
B· 786	21	4·83	46·66	10·00	63·00	18·8	1·79	10,977	13·33	13·44	13,933
B· 793	20	10·95	39·35	7·30	65·00	21·6	2·11	11,131	16·14	14·47	14,228
B· 798	12	5·81	40·07	6·19	66·50	19·2	1·85	10,266	14·44	11·61	12,960
B. 807	18	1·22	37·37	6·80	63·00	19·4	1·89	9,259	14·78	15·04	12,372

TABLE VII. B. AVERAGES. FIFTH YEAR SEEDLINGS PLANTED AT CODRINGTON IN MAY 1927.

COMPOSITION OF JUICE.

Name of Variety.	Extraction per cent by mill.	Degree Brix.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
B. 705	61·00	20·2	79·81	18·43	1·16	·60	91·3
B. 725	61·00	19·4	80·58	17·28	·71	1·43	89·0
B. 727	64·50	21·0	78·96	19·20	·70	1·14	91·2
B. 750	62·00	21·2	78 79	19·18	·86	1·17	90·4
B. 763	65·00	20·8	79·22	19·12	·56	1·10	92·0
B. 786	63·00	18·8	81·19	16 67	·61	1·53	88·6
B. 798	65·50	21·6	78·36	19·43	·70	1·51	89·8
B. 798	66·50	19·2	80·75	17·20	·60	1·45	89·4
B. 807	63·00	19·4	80·58	17·56	1·11	·73	90·4

TABLE VIII A.—FIFTH YEAR SEEDLINGS PLANTED AT SELECT SEEDLING STATIONS.

Name of Variety.	Number of canes per stool.	Per cent by number of rotten canes.	Tons per acre.		Expression by mill.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.		Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
							lb. per gallon.	lb. per acre.			
B. 689	11	nil.	55·06	4·15	67·00	19·0	1·82	13,993	14·29	10·23	17,623
B. 693	...	..	..	...	...	..	...	...	...	...	...
B. 694	...	..	...	..	...	..	...	...	...	...	...
B. 697	12	nil.	45·78	3·89	66·50	19·8	1·85	11,700	...	..	...
B. 726	8	nil.	31.50	5·83	63·00	21·4	2.13	8,723	15·82	14·55	11,161
B. 759	...	...	..	..	..	...	..	..	...	..	...

TABLE VIII B. FIFTH YEAR SEEDLINGS PLANTED AT SELECT SEEDLING STATIONS.
COMPOSITION OF JUICE.

Name of Variety.	Extraction per cent by mill.	Degree Brix.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
B. 689	67·00	19·0	81·02	16 93	·69	1·36	89·2
B. 693	..	All	cut for	plants.	...	...	...
B. 694	...		do.	do.	...		...
B. 697	66·50	19·8	80·15	17·16	·75	1·94	86·5
B. 726	63·00	21·4	78·62	19·63	·96	·79	91·8
B. 759	...	All	cut for	plants.	...	...	-

TABLE IX. AVERAGES. FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM AND LOW BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by Mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre
								lb. per gallon.	lb per acre.			
W. Transparent ..	11	7·42	29·69	1·98	63·79	3,937	20·0	1·85	7,249	14·13	11·79	9,301
Ba. 11569 ..	12	5·97	37·07	4·92	63 86	4,899	21·2	1·98	9,712	14·75	12·07	12,219
B. 374	12	2·68	35·49	4·10	61·71	4,534	20·9	1·95	8,855	14·21	13·70	11 504
B. 391	13	4·95	35·80	4·64	64·14	4,749	20·8	1·96	9,349	14·52	12·45	11,681
B. 472	12	5·07	33·77	4·89	63·50	4 438	20·5	1·91	8,502	13·97	13·13	10,610
B. 602	12	1·85	30·53	3·95	63·71	3,999	20·1	1·83	7,334	13·46	13·54	9,122
B. 604	13	2·46	29·23	3·77	62·25	3,792	19·9	1·84	6,967	13·79	12·39	9,093
B. 606	13	10·02	35·39	4·39	65·21	4,805	19·2	1·71	8,249	12·91	11·68	10,360
B. 612	14	3·92	32·41	4·38	63·71	4,316	19·3	1·76	7,601	13·37	12·16	9.738
B. 663	13	4·35	38·23	4·59	64·66	5,160	18·7	1·67	8,604	12·57	12·45	10,791

TABLE X. AVERAGES. FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM AND LOW BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes	Tons per acre		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
W. Transparent	12	5·90	25·22	5·03	64·08	3,353	20·0	1·86	6,174	14·77	12·22	7,238
Ba. 11569	13	4·61	35·80	1·45	62·85	4,653	20·7	1·91	8,894	14·14	13·06	11,041
B. 117	12	4·75	30·61	4·78	62·83	3,990	21·5	2·04	8,166	15·71	13·24	...
B. 268	10	2·74	29·27	4·18	66·25	3,999	20·0	1·86	7,466	14·26	12·66	9,101
B. 368	14	1·06	32·31	5·48	66·00	4,447	19·2	1·77	7,867	13·46	12·84	...
B. 417	11	3·94	30·97	4·60	64·50	4,115	20·6	1·93	7,976	15·04	13·36	9,888
B. 465	16	2·82	32·83	5·21	64·00	4,318	20·7	1·88	8,154	14·61	12·99	...
B. 505	15	1·36	30·20	5·07	63·50	3,956	21·8	2·08	8,208	16·34	12·64	...
B. 600	15	1·66	32·93	5·60	62·17	4,403	19·3	1·73	7,467	13·15	14·53	...
B. 605	16	3·65	32·04	5·35	63·00	4,183	20·7	1·91	7,860	14·27	13·18	...

TABLE XI—AVERAGES. FIELD AND FACTORY RESULTS SELECT SEEDLING STATIONS—RED SOILS—PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose. lb. per acre.
								lb. per gallon.	lb per acre.			
W. Transparent ...	9	5·37	28·22	5·68	64·00	3,769	18·7	1·74	6,555	11·15	13·03	9,003
Ba. 6032 ...	9	·24	38·58	4·81	63·67	5,154	17·4	1·57	8,123	12·50	12·53	11,111
B.H. 10 (12) ...	11	None.	40·40	6·81	65·00	5,465	19·4	1·82	9,926	13·70	11·76	12,310
Ba. 11569 ...	11	1·92	39·04	6·31	63·33	5,153	19·6	1·85	9,508	14·66	12·35	12,080
B. 117	10	·94	33·30	6·30	63·00	4,374	19·9	1·87	8,137	14·55	14·19	9,994
B. 374	11	·69	46·14	9·10	64·00	6,140	19·5	1·82	11,155	14·07	13·98	12,871
B. 391	13	1·67	40·69	7·14	64·00	5,441	19·1	1·82	9,895	14·39	13·04	12,836
B. 417	8	3·09	35·67	6·99	65·00	4,854	18·9	1·73	8,284	12·77	12·58	9,973
B. 472	10	·20	38·92	6·59	66·00	5,341	19·5	1·86	9,791	13·90	13·30	11,963
B. 603	11	·45	33·16	5·49	64·00	4,445	18·2	1·75	7,424	12·31	14·17	9,176
B. 606	10	4·41	38·64	7·61	64·67	5,234	18·0	1·62	8,490	12·12	13·86	10,452
B. 612	15	1·04	39·60	7·40	63·33	5,248	17·9	1·65	8,647	12·23	13·01	10,831
B. 663	11	·98	43·86	7·18	64·53	5,946	17·4	1·56	9,250	11·76	14·05	11,511
S.C. 12 (4)	10	3·28	40·39	6·77	64·50	5,449	18·8	1·74	9,405	12·38	12·99	11,056

TABLE XII. AVERAGES. FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. RED SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
W. Transparent	10	12·40	30·36	5·60	64·00	4,057	18·8	1·63	6,640	12·26	11·57	8,104
Ba. 6032	9	1·80	39·36	4·29	64·83	5,340	17·9	1·55	8,351	11·90	12·00	9,974
B.H. 10(12)	10	2·29	40·85	4·02	65·00	5,519	19·5	1·73	9,533	12·97	13·68	11,463
Ba. 8069	11	2·78	41·12	5·79	65·90	5.655	18·7	1·59	8,986	12·45	12·28	11,491
Ba. 11569	11	12·00	34·79	5·17	64·35	4,638	20·0	1·81	8,467	14·00	12·42	10,003
B. 2001..	12	5·69	37·95	5·47	63·83	5,059	18·4	1·58	7,981	12·40	13·76	10,621
B. 67	11	4·01	44·41	6·11	67·33	6,250	19·1	1·66	10,318	12·84	11·14	13 575
B. 268	9	14·76	30·45	3·41	66·00	4,193	18·8	1·70	7,121	13·24	11·33	8,213
B. 368	10	1·86	38·09	4·26	64·33	5,132	17·9	1·58	8,093	12·08	13·51	10,325
B. 417	8	6·76	35·70	4·94	66·67	4,945	19·3	1·76	8,739	13·56	12·49	10,725
B. 465	12	5·80	36·52	5·65	65·00	4,798	18·7	1 68	8,042	13·28	12·35	10,588
B. 585	10	9·64	29·60	3·78	64·33	4,001	17·3	1·48	5,909	11·02	15·15	6,787

TABLE XIII. AVERAGES.

COMPOSITION OF JUICE.

Name of Variety.	Extraction per cent. by mill.	Degree Brix.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
W. Trans. Mean of 19 samples	63·95	19·6	80·33	17·25	·76	2·13	85·2
Ba. 6032 „ „ 17 „	64·38	18·4	81·60	15·25	·84	2·30	82·8
B.H. 10(12) „ „ 9 „	65·11	20·0	79·97	16·97	·79	2·27	84·8
Ba. 8069 „ „ 3 „	65·90	18·7	81·27	14·84	·93	2·96	79·3
Ba. 11569 „ „ 19 „	63·53	20·6	79·39	17·65	·79	2·15	85·7
B. 2001 „ „ 3 „	63·83	18·4	81·59	14·71	·75	2·95	79·9
B. 67 „ „ 3 „	67·33	19·1	80·84	15·44	·82	2·90	80·6
B. 117 „ „ 9 „	62 89	21·0	78·91	18·31	·67	2·11	86·8
B. 268 „ „ 10 „	66·25	19·7	80·34	16·85	·83	1·78	85·7
B. 368 „ „ 9 „	65·44	18·8	81·24	15·87	·75	2·14	84·6
B. 374 „ „ 10 „	62·40	20·5	79·44	17·69	·70	2·17	86·1
B. 381 „ „ 4 „	63·40	19·3	80·39	17·02	·82	1·76	86·7
B. 391 „ „ 10 „	64·10	20·3	79·66	17·77	·73	1·85	87·3
B. 417 „ „ 14 „	65·68	20·0	79·98	17 05	·79	2·19	85·2
B. 465 „ „ 9 „	63·67	20·0	79·93	16·80	·83	2·43	83·7
B. 472 „ „ 9 „	64·33	20·2	79·82	17·54	·72	1·92	87·9
B. 505 „ „ 6 „	63 42	21·7	78·21	19·13	·81	1·84	87·7
B. 585 „ „ 5 „	64·10	17·7	82·27	14·31	·90	2·51	80·8
B. 600 „ „ 6 „	64·17	19·3	80·68	16·07	·81	2·43	83·2
B. 603 „ „ 10 „	63·80	19 5	80·49	16·52	·78	2 20	84·7
B. 604 „ „ 6 „	62·25	19·9	80·06	17·07	·70	2·16	85·6
B. 605 „ „ 6 „	63·00	20·7	79·25	17·63	·80	2·32	84·9
B. 606 „ „ 10 „	65·05	18·7	81·13	15·70	·85	2·32	83·3
B. 612 „ „ 10 „	63·60	18·9	81·12	16 05	·78	1·99	85·1
B. 654 „ „ 4 „	59 37	20·0	79·96	17·19	·81	2·03	85·8
B. 662 „ „ 5 „	63·30	19·0	80·98	15·74	1·02	2·26	82·8
B. 663 „ „ 10 „	64·62	18·3	81·66	15·25	·94	2·15	83·3
B. 666 „ „ 4 „	65·62	18·6	81·40	14·79	1·11	2·69	79·4
S.C. 12(4) „ „ 9 „	63·72	20·0	80·03	17·21	·71	2·05	86·2

TABLE XIV. FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. LOW BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Prix.	Saccharose		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
W. Transparent	12	4·71	24·95	4·68	66·00	3,419	20·0	1·82	6,222	...	...	..
	13	6·07	29·15	5·17	67·00	4,051	20·2	1·82	7,372	14·45	11·11	9,435
	12	4·21	20·89	4·92	61·50	2,790	20·6	1·91	5,328	17·17	10·30	6,629
	10	7·84	19·89	3·00	61·00	2.512	20·6	1·88	4,723	14·06	10·92	6,263
	13	9·20	29·35	5·29	64·50	3,942	19·2	1·72	6,781	13·43	10·53	8,829
	13	6·10	26·08	6·84	60·00	3,267	18·6	1·58	5,162	...	...	...
	8	·87	25·25	3·58	65·50	3,427	20·4	2·01	6,889	15·46	13·11	8,744
	12	10·96	21·81	2·91	63·00	2,841	21·0	2·13	6,052	16·40	11·96	8,014
	11	6·76	27·66	4·59	60·50	3,466	20·6	1·98	6,863	15·03	12·51	9,314
	12	5·32	22·99	4·31	67·00	3,187	20·8	1·99	6,343	13·73	14·11	7,071
Mean of 38 plots ...	12	6·18	24·80	4·53	63·90	3.290	20·2	1·88	6,174	14·59	11·86	...
Ba. 6032	14	4·34	29·15	4·30	66·50	4,057	18·0	1·61	6,532	...	...	...
	15	2·49	32·13	4·05	65·00	4,397	18·8	1·65	7,255	12·98	12·25	9,428
	12	1·60	27·42	4·93	65·00	3,712	19·2	1·73	6,422	13·13	11·90	8,065
	12	1·67	30·58	2·91	63·00	4,022	18·6	1·63	6,556	12·35	11·84	8,459
	14	1·90	31·63	4·66	62·50	4,128	18·6	1·65	6,811	13·08	12·87	9,269
	11	2·07	27·81	4·46	61·00	3,548	18·2	1·60	5,677	11·87	14·17	7,396
	9	2·26	32·74	3·40	66·00	4 504	19·0	1·76	7,927	13·63	12·80	9,997
	12	·54	41·14	3·90	65·00	5 569	19·2	1·85	10,303	14·75	14·23	13,593
	13	9·50	30·41	2·41	66·00	4, 76	19·1	1·75	7,308	13·55	12·01	9,229
	13	4·76	26·52	4·03	65·00	3,590	19·2	1·70	6,103	12·06	14·23	7,164
Mean of 38 plots ..	13	3·11	30·98	3·91	64·50	4 170	18·8	1·69	7,089	13·04	12·92	...

TABLE XIV.—*Continued* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. LOW BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by Mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre
								lb. per gallon.	lb per acre.			
Ba. 11569	15	1·56	36·60	4 81	64 00	4,835	21·4	1·94	9,380	14·68	12·12	12 036
	15	2·49	38·87	4·79	66·00	5,295	21·4	1·95	10,325	14·91	12·01	12,983
	12	1 36	32·28	4·90	64·50	4,305	21·0	1·92	8,265	14·57	11·83	10,563
	12	6·19	32·53	4·33	64·00	4,300	21·2	1·96	8,429	14·91	11·16	10,468
	14	1·70	37 65	5·94	62·00	4,837	20·4	1·89	9,142	13·96	11·27	11,773
	16	4·86	35·91	5·19	61·00	4,544	20·2	1·83	8,315	13·16	13·00	10,587
	11	2·48	35·83	5·13	62·00	4,577	21·8	2·12	9 704	15·19	13 30	12 190
	12	2·69	35·57	3·66	61·50	4,527	20·8	2 03	9,189	15·13	13·60	12,295
	13	6·65	36·43	3·73	65 00	4,884	21·6	2·09	10,279	15·97	12·37	13,031
	15	1·39	33·72	3 53	64·00	4,476	20·2	1·85	8,281	12·87	14·76	9,772
Mean of 36 plots	14	4·12	35 54	4 63	63·40	4,658	21·0	1·96	9,131	14·57	12·54	11,565
B. 117	13	2·02	24·02	4·09	60·00	2,972	21·6	1·97	5,855	...	...	...
	12	·58	23·26	4 03	64·00	3,068	21 8	2·07	6,351	15·53	10·68	8,092
	14	5·35	30·21	6·51	61 00	3,810	21·0	1·93	7,354	14 01	16 38	9,482
	11	10·82	29·14	3·47	62·00	3,711	22 6	2·31	8,573	17·59	12·67	11,483
Mean of 15 plots	13	4·69	26·66	4 52	61·75	3,390	21·7	2·07	7,033	15·71	13 24	...
B. 268	12	2·55	26·29	4·48	66·00	3,953	20·6	1·86	6,682	14·01	11·44	8,240
	10	4·13	24·68	3·37	69·00	3,538	19·8	1·82	6 440	13 89	9·81	7,680
	11	3 63	26·57	5·14	66 00	3,637	20·2	1·87	6,802	13·67	15·30	8,136
	10	5·26	35·23	4·07	67 00	4,911	19 4	1·91	9,381	14·75	13·31	11,639
	12	·85	29·17	3·62	67·50	4,067	21·2	1·98	8,053	15·00	13·43	9,810
Mean of 18 plots ..	11	3·28	28·39	4 20	67·10	3,949	20·2	1·89	7,472	14·26	12·66	9,101

TABLE XIV.—*Continued* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. LOW BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose. lb. per acre.
								lb. per gallon.	lb. per acre.			
B. 368	15	·45	26·32	5·74	64·00	3,500	19·8	1·79	6,265	13·06	11·52	7,700
	14	nil	29·10	5·38	68·00	4,114	19·6	1·76	7 240	13·47	11·52	8,779
	12	1·37	25·39	5·59	65·00	3 446	18·6	1·68	5,789	12·60	11·20	7,167
	14	2·93	29·25	3·21	66·00	4,007	20 0	1·98	7,935	16·12	13.03	10,562
	21	1·59	49·82	8·46	66·00	6,859	18·8	1·81	12,415	12·07	16·91	13,469
Mean of 17 plots	15	1·27	31·98	5·68	65·80	4,385	19·4	1·80	7,929	13·46	12·84	9 535
B. 374	15	1·08	31·80	3·96	61·00	4,003	21·4	1·98	7,926	14·28	14·95	10,171
	12	4·96	27·43	2·89	63·00	3 575	20·0	1·89	6,757	13·83	12·58	8,497
	15	1·08	34·73	5·35	6 .00	4,390	20·4	1·88	8,254	13 99	13·65	10,8 4
	9	nil	33·05	3·89	62·0	4,233	21·2	2·05	8,678	14·86	14·82	11,002
	12	4·30	32 14	3·64	59·5	3,951	21·2	2·03	8,020	14·98	13·09	10,785
Mean of 20 plots ...	13	2·28	31·83	3·95	61·30	4 030	20·8	1·97	7,927	14·39	13·82	10,268
B. 381	15	2·60	26·20	6.42	59·60	3,238	20·2	1·84	5,959	13·79	13·33	8,092
	16	·64	29·49	2·1	66·00	4,050	18·4	1 88	7,615	...	...	...
	13	3·17	42 64	5·10	65·00	5,730	21·0	2·07	11,862	15·98	12·60	15,264
Mean of 6 plots ...	15	2 14	32·78	4·89	63·53	4,339	19·9	1·93	8,479	14·89	12·97	11,678
B. 391	17	2·14	35·01	4· 1	65·00	4,719	20·4	1·88	8,773	14·50	11·43	11,380
	15	3·82	35·44	3·88	63 00	4,620	20·8	1·93	8,917	14·40	11·71	11,432
	15	3·04	36·28	5·62	62·00	4,653	19 8	1·84	8,598	13 33	12·16	10,833
	10	5 13	36 55	4·07	65·00	4,912	21·0	2·09	10,266	15·90	12·13	13,019
	14	7·07	35 23	5·04	64·00	4,653	21·4	2·09	9,726	15·66	12·12	12 357
Mean of 20 plots ...	14	4·24	35·71	4·54	63·80	4,715	20·7	1·97	9,276	14·76	11·91	11,804

TABLE XIV.—*Continued.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. LOW BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
B. 417	11	8·77	26·02	4·20	63·00	3,400	20·2	1·82	6,187	...	...	...
	12	1·10	34·01	3·47	67·50	4,735	21·6	1·96	9,280	15·24	12·68	11,610
	12	3·02	30·91	4·36	66·00	4,218	21·0	2·00	8,436	15·05	12·24	10,422
	12	3·02	34·71	5·70	61·00	4,032	20·0	1·84	8,155	...	...	...
	10	6·02	30·39	4·03	66·00	4,136	21·6	2·11	8,727	16·62	12·80	11,312
	10	nil.	26·31	4·43	64·50	3,505	21·2	1·99	6,974	13·46	15·03	7,931
Mean of 17 plots ..	11	3·66	30·39	4·57	64·67	4,071	20·9	1·95	7,960	15·09	13·19	...
B. 465	17	·77	36·66	4·90	63·00	4,759	21·8	1·99	9,470	14·70	11·96	12,071
	15	·68	28·72	4·70	66·00	3,922	20·8	1·95	7,647	15·28	11·22	9,829
	17	2·99	33·75	6·49	66·00	4,616	20·4	1·84	8,494	13·72	15·07	10,372
	15	1·12	30·39	4·29	63·00	3,958	21·0	1·99	7,876	15·87	11·10	10,802
	20	9·39	31·83	4·77	62·00	4,070	21·6	1·98	8,059	13·48	15·58	9,612
Mean of 17 plots ..	17	2·99	32·27	5·13	64·00	4,265	21·1	1·95	8,309	14·61	12·99	10,537
B. 472	15	·65	38·39	5·40	64·00	5,091	20·4	1·90	9,673	14·05	14·16	12,081
	10	·96	27·17	5·64	65·00	3,663	20·2	1·82	6,652	13·38	10·62	8,144
	16	·82	33·69	4·65	64·00	4,483	19·6	1·81	8,111	13·19	13·32	9,953
	9	nil.	36·94	5·83	63·00	4,823	20·4	1·97	9,502	14·82	13·19	12,264
	12	12·43	34·69	4·86	61·00	4,361	21·8	2·16	9,420	15·89	14·30	12,348
Mean of 19 plots ..	12	2·93	34·18	5·28	63·40	4,484	20·5	1·93	8,672	14·27	13·12	10,958
B. 505	16	3·53	29·58	5·38	63·50	3,874	21·6	1·99	7,709	...	...	...
	13	1·26	22·72	4·27	64·00	2,989	22·4	2·20	6,576	16·71	11·04	8,505
	14	nil.	30·15	5·98	62·00	3,861	21·2	1·95	7,530	...	...	...
	16	2·35	34·07	4·56	66·00	4,619	22·6	2·27	10,484	17·47	11·67	13,333
	17	nil.	29·08	4·56	62·00	3,706	22·4	2·17	8,042	14·83	15·20	9,659
Mean of 18 plots ...	15	1·43	29·12	4·95	63·50	3,810	22·0	2·12	8,068	16·34	12·64	10,499

TABLE XIV *Continued* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. LOW BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
B 600 ..	17	2·78	25·06	6 43	63·00	3,283	19·6	1·70	5,581	12·50	12·82	7,017
	14	nil	30 39	4·59	65·00	4,136	19 8	1·79	7,403	13·62	11·84	9,272
	15	3·72	34·29	5·79	61·00	4,356	18 6	1·63	7 100	11·87	10·74	9,093
	13	2 86	32·57	2·68	64·50	4 372	19 4	1·85	8,037	14·73	12·07	10,747
	17	nil	38·62	5·62	65·00	5,207	20·2	1·82	9,476	13·01	15 17	11,255
Mean of 17 plots	15	1·87	32 17	5·02	63·80	4 271	19·5	1·76	7,529	13·15	12·53	9,477
B. 603 ...	16	·41	28·25	3·60	62·00	3,627	20·6	1·83	6,637	13 28	11·41	8,403
	13	1·25	26·31	1·40	68 ·0	3,708	2 ·4	85	6,860	14·04	11·73	8,276
	14	1·16	28·32	3·13	61·00	3 787	18·4	1·67	6,324	12·44	12 84	7,892
	8	1 22	27·12	4·25	63 00	3,543	20 2	1·92	6,803	14·48	13·81	8,795
	11	4·39	27·75	4·16	61 0	3,511	20 0	1·88	6,606	13·79	13·26	8,572
Mean of 20 plots	12	1·69	27·55	3·92	63·60	3,636	19·9	1 83	6,616	13 61	13·22	8,338
B. 604 .	15	1·13	26·20	2·57	63·00	3,418	20·6	1·90	6 493	13·59	11·07	8,315
	14	6·07	27·09	3·58	59 50	3,315	20·0	1·82	6,084	13·50	11·07	8,245
	14	·47	28·16	4·12	6 ·00	3,51	19·2	1·72	6,052	12·39	14·80	7,815
	9	1·93	27·22	4·28	64·00	3,619	19·8	1·85	6,695	14 13	12·36	8,835
	11	4·91	25·11	3·54	62·00	3,227	20·4	1·95	6 292	14·59	12·67	8,208
Mean of 20 plots	13	2·90	26·76	3·62	61·70	3,426	20·0	1·85	6 324	13·73	12·89	8,284
B. 605 ...	17	2·11	29·15	5·67	61·00	3,676	21·0	1·93	7,095	14 32	12·48	9,350
	15	4·65	21·10	3·11	64·00	2,790	21·2	1·94	5,412	14·53	10·92	6,868
	18	4·86	39·17	9·19	63·00	5,162	20·0	1·79	9,240	13·17	14·18	11,644
	13	4·22	30·75	4· ·6	65·00	4,132	21·0	2·01	8,430	15·62	12 37	10,759
	15	3 72	24·58	3 51	62·00	3,140	21·8	2·01	6,406	13·7 .	15·96	7,542
Mean of 18 plots	16	3·91	29·01	5 13	63·00	3,780	21·0	1·95	7,317	14· .7	13·18	9,233

TABLE XIV.—*Continued.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. LOW BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool	Per cent. by number of rotten canes.	Tons per acre.		Expression by Mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre
								lb. per gallon.	lb. per acre.			
B. 606	18	8·10	34·48	4·79	66·00	4,728	19·8	1·75	8,273	12·77	10·13	10,589
	13	15·38	28·93	3·60	62·00	3,729	19·6	1·73	6,452	12·77	10·13	8,275
	17	4·61	37·16	5·62	64·00	4,926	18·6	1·67	8,292	12·73	12·00	10,597
	10	4·64	41·53	4·87	64·00	5,545	18·8	1·69	9,370	13·01	12·72	12,103
	15	9·11	35·53	3·99	64·00	4,728	19·6	1·79	8,463	13·95	13·08	11,102
Mean of 20 plots	15	8·37	35·53	4·57	64·00	4,731	19·3	1·73	8,170	13·05	11·61	10,533
B. 612	17	1·36	37·27	5·22	64·00	4,960	19·6	1·73	8,580	13·68	11·40	11,421
	14	1·40	30·11	3·54	64·00	4,010	19·4	1·76	7,057	13·29	11·04	8,963
	15	3·10	25·35	4·84	60·00	3,173	18·8	1·71	5,426	12·97	13·20	7,365
	12	5·36	38·16	4·87	64·00	5,078	19·6	1·85	9,394	14·15	13·44	12,095
	12	8·94	22·18	2·74	62·00	2,866	19·0	1·76	5,044	13·53	12·92	6,722
Mean of 20 plots ...	14	4·03	30·61	4·24	62·80	4,017	19·3	1·76	7,100	13·52	12·10	9,313
B. 654	17	4·98	30·92	2·94	61·00	3,919	19·8	1·79	7,014	13·63	13·78	9,441
	22	2·16	30·63	4·47	58·50	3,719	20·0	1·89	7,029	13·48	14·80	9,247
	14	3·27	36·76	4·23	60·00	4,571	20·4	1·89	8,639	14·39	14·86	11,849
	20	2·98	36·51	3·06	58·00	4,400	19·8	1·85	8,140	14·27	14·00	11,672
Mean of 16 plots ...	18	3·35	33·71	3·68	59·37	4,152	20·4	1·86	7,706	13·94	14·35	10,522
B. 662	17	3·39	35·76	4·09	64·00	4,766	19·2	1·62	7,721	12·06	16·08	9,660
	17	6·53	38·55	3·96	64·00	5,151	18·6	1·64	8,448	12·54	11·76	10,829
	17	1·58	35·58	5·02	65·00	4,820	19·0	1·72	8,290	13·52	11·55	10,774
	10	10·93	30·80	2·93	62·50	1,012	19·0	1·72	6,901	13·00	13·13	8,968
	12	11·14	22·50	3·21	61·00	2,858	19·2	1·76	5,031	12·73	14·56	6,416
Mean of 20 p'ots .	15	6·71	32·64	3·84	63·30	4,321	19·0	1·69	7,278	12·77	13·42	9,329

TABLE XIV.—*Concluded.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. LOW BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose. lb. per acre
								lb. per gallon.	lb. per acre.			
B. 663 ...	17	2·20	38·06	4·61	66·00	5,236	19·0	1·65	8,639	12·82	13·94	10,930
	12	5·68	35·68	4·29	65·00	4,845	18·4	1·61	7,801	12·14	11·08	9,702
	16	1·24	38·80	5·35	62·00	5,026	18·4	1·71	8,595	12·94	13·93	11,246
	10	4·01	38·99	4·25	64·70	5,271	18·4	1·63	8,591	12·49	12·36	10,908
	13	12·19	34·35	4·44	63·50	4,554	18·6	1·69	7,696	12·85	12·78	9,887
Mean of 19 plots ...	14	5·06	37·18	4·59	64·24	4,986	18·6	1·66	8,261	12·65	12·82	10,535
B. 666	18	nil	29·17	5·42	65·00	3,952	19·0	1·60	6,323	12·25	12·95	8,004
	15	1·10	31·56	6·57	67·00	4,418	18·4	1·57	6,937	11·95	12·43	8,449
	13	2·98	34·76	6·92	65·50	4,769	17·8	1·40	6,676	10·59	10·56	8,245
	11	1·23	34·18	4·44	65·00	4,627	19·2	1·78	8,235	13·65	13·53	10,450
Mean of 15 plots ...	14	1·33	32·42	5·84	65·63	4,442	18·6	1·59	7,043	12·11	13·87	8,787
S.C. 12 (4)	14	3·42	27·42	4·27	63·00	3,569	21·2	1·94	6,923	14·53	15·04	8,925
	12	5·91	28·39	3·47	62·50	3,681	20·2	1·84	6,772	13·69	12·62	8,707
	14	3·58	32·71	5·74	62·50	4,251	19·6	1·82	7,738	13·39	11·63	9,812
	8	5·76	27·66	4·64	64·00	3,675	20·0	1·91	7,019	14·73	12·84	9,127
	13	5·99	32·31	4·86	63·00	4,212	20·8	2·04	8,593	15·22	14·55	11,017
Mean of 20 plots ...	12	4·93	29·70	4·60	63·00	3,878	20·4	1·91	7,409	11·31	13·94	9,518

TABLE XV.—FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Sacch arose lb. per acre.
								lb. per gallon.	lb. per acre.			
W. Transparent	11	9·58	40·65	7·44	62·00	5,240	19·6	1·70	8,908	11·56	13·93	10,526
	11	11·85	35 85	5·79	66 00	4,924	19·4	1·87	9,207	14·94	10·42	11,997
	11	4·00	34·58	6·48	64·00	4,613	19·0	1·72	7,935	...	...	...
Mean of 11 plots ...	11	8 48	37 03	6·57	64·00	4,926	19·3	1·76	8,683	13·25	12·18	..
Ba. 6032 Mean of 4 plots ...	9	12·10	36·68	3·32	64·00	4,909	18·2	1·49	7,315	10·41	12·84	8,554
B.H. 10(12)	11	nil	36·89	4·90	66·00	5,046	20·4	1·88	9,486	...	...	..
	11	5·64	36·71	4·10	66·00	5,005	21·2	1·86	9,308	12·54	13·37	10,311
	14	·74	46·50	4·29	64·00	6,133	21·8	2·12	13,001	15·92	14·52	16,582
Mean of 11 plots ...	12	2·13	40·03	4·43	65·33	5,395	21·1	1·95	10,598	14·23	13·95	...
Ba 11569	10	13·61	33·47	3·78	62·00	4 290	21·0	1·81	7,765	13·00	13·05	9,746
	11	8·88	44·74	6·77	66·00	6,110	20 8	2 02	12,342	15·31	11·33	15,344
	11	5·99	40·73	4·80	52·00	5,2·9	20·6	1·90	9,935	...	...	...
Mean of 11 plots ...	11	9·49	39·65	5·12	63·33	5,210	20·8	1·91	10,0·4	14·16	12·19	...
B. 117	10	7·09	31·45	4·10	64·00	4,157	21·2	1·86	7 732	13·32	12·72	9 382
	13	2·62	45·75	6·49	66·00	6,222	21·0	2·11	13,129	16·44	12·01	16,848
Mean of 7 plots ...	12	4·86	38·60	5·30	65·00	5,910	21·1	1·99	10,431	14·88	12 37	13,115
B. 268 ...	9	nil	33·65	4·12	62·00	4,348	19·0	1·71	7,436	...	.	...
	10	6·56	43·95	5·89	67·00	6,113	20 0	1·90	11,614	14·74	11·00	14,511
Mean of 6 plots ..	10	3·28	38·00	5·01	64·50	5,231	19·5	1·81	9,050	...	...	...

TABLE XV.—*Continued* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
B. 368	10	nil	33·93	4·47	67·00	4,754	18·4	1·59	7,559	...	...	..
Mean of 4 plots .	..	..	...	...	...	..	..	...	...	...	...	..
B. 374	10	5·70	41·27	4·51	62·50	5,333	21·0	1·81	9,652	11·93	14·12	11,029
	12	1·66	48·02	4·41	63·00	6 255	21·0	2·03	12,697	15·58	12·70	16,759
Mean of 7 plots ..	11	3·68	44·65	4·48	62 75	5 974	21·0	1·92	11,175	13·76	13·41	13,894
B. 381	11	·60	41·22	6·32	63·00	5,439	17·8	1·55	8 431	...	...	...
Mean of 3 plots	...	...	...	...	..	...	...	.	...	...	..	...
B. 391	12	·28	39 45	6·13	66·00	5,361	22·0	2 15	11,526	16·01	14·73	14 148
	10	13·15	32·48	3·60	64·00	4,308	20·4	1·75	7,539	11 82	12 84	8 600
Mean of 7 plots ...	11	6 72	35·97	4·87	65·00	4,835	21·2	1·95	9,533	13 92	13·79	11,374
B. 417	10	2 81	37·49	4·90	66·50	5,179	19·8	1 81	9,374	...	...	...
	7	13·24	29·06	2·98	70·00	4,223	20·0	1·75	7,390	12·46	11·60	8,111
Mean of 7 plots ..	9	8·03	33·28	3·94	68·25	4,701	19 9	1·78	8,382	...	...	...
B. 465	14	1·94	35·62	6·12	64·00	4,760	18·6	1·55	7,377	..	...	...
Mean of 4 plots ..	...	...	...	...	...	...	..	...	...	...	...	...
B. 472	8	15·73	31·71	2 96	64·00	4,205	20 4	1·82	7,653	12·49	13·20	8,870
Mean of 3 plots ..	...	...	...	..	..	...	..	...	...	...	...	...
B. 505	13	1·01	35 62	5·65	63·50	4 687	20 4	1·90	8,906	...	..	...
Mean of 4 plots ...	...	...	...	...	...	...	..	...	...	...	...	..

TABLE XV.—*Continued.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM BLACK SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
B. 585 ... ... } Mean of 4 plots } ...	11	1·75	26·42	5·29	64·00	3,538	18·0	1·56	5,520	...	...	...
B. 600 ... ... } Mean of 4 plots } ...	11	·59	36·71	4·87	66·00	5,066	18·2	1·59	8,055	...	...	...
B. 603	10	4·53	35·55	4·28	64·00	4,453	20·2	1·72	7,659	11·83	13·80	8,889
	12	...	40·44	3·79	64·00	5,359	20·6	1·95	10,450	14·38	14·38	13,025
Mean of 7 plots ...	11	2·27	38·00	4·04	64·00	4,906	20·4	1·84	9,055	13·11	14·34	10,957
B. 604 ... ... } Mean of 3 plots } ...	13	·26	41·57	4·52	65·00	5,623	19·4	1·81	10,177	14·11	12·37	13,139
B. 605 ... ... } Mean of 4 plots } ...	16	2·36	47·18	6·43	63·00	6,185	19·4	1·71	10,577	...	...	...
B. 606	11	8·89	36·81	5·14	70·00	5,371	19·0	1·78	9,561	13·84	11·00	11,413
	10	19·51	33·29	2·72	66·50	4,610	19·2	1·59	7,330	11·32	12·73	8,141
Mean of 6 plots ...	11	14·16	35·05	3·93	68·25	4,991	19·1	1·69	8,446	12·58	11·87	9,927
B. 612	11	2·64	35·21	3·58	67·00	4,912	19·2	1·63	8,007	11·45	12·87	9,029
	14	4·66	38·57	5·89	65·00	5,218	19·6	1·86	9,696	14·55	10·27	12,571
Mean of 7 plots ...	13	3·65	36·89	4·74	66·00	5,063	19·4	1·75	8,852	13·00	11·57	10,800
B. 663	11	·92	45·96	5·38	66·00	6,328	18·8	1·72	10,885	13·40	11·67	13,797
	9	4·18	35·75	3·78	65·40	4,861	19·6	1·65	8,021	11·32	11·42	9,065
Mean of 6 plots ...	10	2·55	40·86	4·58	65·70	5,595	19·2	1·69	9,453	12·36	11·55	11,431

TABLE XV.—*Concluded.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM BLACK SOILS. PLANT CANES

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
B. 664 ... ... Mean of 3 plots ...	11	...	30·59	5·81	63·00	3,978	21·4	1·96	7,796	...	...	...
S.C. 12(4)	7	11·59	24·50	3·03	64·00	3,249	20·4	1·78	5,784	12·15	13·56	6,668
	13	...	45·51	5·21	65·50	6,193	19·8	1·90	11,767	14·41	11·73	14,691
Mean of 5 plots ...	10	5·80	35·01	4·12	64·75	4,721	20·1	1·84	8,776	13·28	12·65	10,680

TABLE XVI.—FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM RED SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool	Per cent. by number of rotten canes.	Tons per acre.		Expression by Mill	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre
								lb. per gallon.	lb per acre.			
W. Trans.	10	5·12	32·17	4·85	65·00	4,337	20·2	1·68	7,287	...	..	...
	11	22·57	27 79	5·99	62·00	3,606	18·0	1·51	5,445	11·74	10·77	7,303
	9	4 98	27·92	4·69	66·00	3,827	19·0	1·62	6,199	...	...	...
Mean of 12 plots	10	10·89	29·26	5·16	64·33	3,923	19·1	1·60	6,310	...	...	...
Ba. 6032	10	...	43·94	4·59	65·50	6,009	18·6	1·55	9,314	...	...	...
	8	4·76	30·72	2·93	65·00	4,190	17·4	1·45	6,075	11·22	12·60	7,721
	9	..	36·48	4·48	64·00	4,898	17·4	1·39	6,808	...	...	...
Mean of 12 plots ...	9	1·59	37·05	4·00	64·83	5,032	17·8	1 46	7,399	...	...	...
B.H. 10 (12)	10	·33	43·60	3·63	64·00	5,788	20·2	1·75	10,129	...	...	...
	10	5·59	38·76	3·94	66·00	5,319	19·6	1·67	8,882	12·92	13·48	9,860
	11	..	40·93	5·83	67·00	5,684	20 4	1·81	10,287	...	...	...
Mean of 12 plots ...	10	1·97	41·10	4·47	65·67	5,597	20·1	1·74	9,786	...	...	—
Ba. 6069	10	...	40·65	6·35	65·00	5,498	19·4	1·59	8,742	...	...	...
	12	6·59	43·94	4·43	66·70	6,124	18·4	1·50	9,185	11·76	11·76	11,575
Mean of 7 plots ...	11	3·30	42 30	5·39	65·85	5,811	18·9	1·55	8,964	...	...	..
Ba. 11569	11	...	41·40	6·66	64·00	5,478	21·0	1 83	10,024	...	...	...
	10	26·06	26 40	3·46	65.00	3,580	18·8	1 61	5,763	12·62	13·07	7,463
	12	...	43·55	7 78	66·00	5,967	20·0	1·75	10,442	...	...	...
Mean of 12 plots ...	11	8·69	37·12	5·97	65·00	5,008	19·9	1·73	8,743	...	...	—
B. 2001	12	3.81	37·23	6·27	65·00	5,048	18·8	1·56	7,874	...	...	...
	14	4·38	38·89	3·11	61·50	5,005	18·0	1·43	7,157	11·32	13·99	9,860
Mean of 8 plots ...	13	4·10	38·06	4·69	63·25	5,027	18·4	1·50	7,516	...	—	—

TABLE XVI.—*Continued.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM RED SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose. lb. per acre.
								lb. per gallon.	lb per acre.			
B. 67	11	3·90	38·60	5·39	66·00	5,289	20.0	1·69	8,938	...	...	...
	12	7·46	51·20	6·16	70·00	7,482	18.6	1·56	11,672	12·47	10·50	14,300
Mean of 8 plots	12	5·68	44 90	5·78	68·00	6,386	19·3	1·63	10,305	...	...	...
B. 117 ... ... Mean of 4 plots	10	·68	38·86	5·65	66·00	5,320	20·2	1·78	9,469	...	...	...
B. 268	9	4.25	35·91	3·60	66·00	4,927	19·6	1 65	8,130	...	...	...
	8	17·45	23·88	2·72	66·00	3 292	18·4	1·72	5,663	12 92	12·01	6,910
Mean of 8 plots	9	10.85	29·90	3·16	66·00	4,110	19·0	1 69	6,897	...	...	...
B. 368	11	3·91	38·34	4·25	66·00	5,305	17·6	1·59	8,434	12·17	12·46	10,450
	10	·64	37·93	3·03	64·00	5,059	19·0	1·59	8,044	...	...	...
Mean of 7 plots ..	11	2·27	38·14	3·64	65·00	5,182	18·3	1·59	8,239	...	...	...
B. 374 ... ... Mean of 4 plots	14	...	56·70	8·93	64·00	7,533	20·0	1·79	13,484	...	...	...
B. 391 ... ... Mean of 4 plots	14	...	42·39	6·61	65·00	5,782	19·2	1·69	9.771	...	..	...
B. 417	7	...	36·55	4·02	66·00	5,012	19·8	1 72	8,621	...	...	...
	8	17·71	28·17	3·38	68·00	3,996	18·8	1·75	6,992	13·50	12 05	8,518
	11	3·98	46·42	8·55	66·00	6,397	18·6	1·56	9,978	10·79	13 37	11,220
Mean of 11 plots ...	9	7·23	37·05	5·32	66 67	5,135	19·1	1·68	8,530	...	...	...

TABLE XVI.—*Concluded.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM RED SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose. lb. per acre.
								lb. per gallon.	lb per acre.			
B 465	11	·85	38·47	5·76	62·00	4,972	19·0	1·59	7,905	...	...	...
	12	13·03	33·11	4.26	64·00	4,421	18·6	1·69	7,476	13·05	12·24	9,678
Mean of 8 plots ...	12	6·94	35·79	5·01	63·00	4,698	18·8	1·64	7,631	..	...	...
B. 472 Mean of 4 plots ..	11	·61	43·53	7·60	68·00	6,164	19·2	1·65	10,170	11·86	12·91	11,563
B. 585	10	24·21	24·27	3·27	64·00	3,269	16·6	1·47	4,806	10·65	14·64	5,789
	11	4·72	33·99	3·11	66·00	4,687	18·4	1·41	6,608	...	...	...
Mean of 8 plots ...	11	14·47	29·13	3·19	65·00	3,978	17·5	1·44	5,707	...	...	...
B. 603 Mean of 4 plots ...	12	·58	37·02	4·98	66·00	5,097	18·8	1·55	7,900	10·88	13·03	9,022
B. 606 Mean of 4 plots ...	10	3·01	39·95	6·74	65·00	5,430	18·2	1·50	8,145	10·44	12·72	9,342
B. 612 Mean of 4 plots ..	13	1·54	40·05	7·16	68·00	5,682	18·8	1·62	9,204	11·69	11·73	10,488
B. 663 Mean of 4 plots ...	13	2·29	47·65	8·63	68·60	6,841	18·0	1·44	9,851	10·40	12·25	11,100
S.C. 12 (4) Mean of 4 plots —	12	4·07	45·96	7·91	67·00	6,408	19·4	1·66	10,638	11·47	13·31	11,809

TABLE XVII.—FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. HIGH RED SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
W. Trans.	10	4·85	28·64	4·76	62·00	3,710	18·4	1·74	6,455	12·77	12·37	8 788
	9	9·52	31·11	6·01	65·00	4,228	18·2	1·70	7.188	14·59	14·28	8.899
	8	6·28	28·21	7·60	64·00	3,769	18·6	1·86	7,010	13·70	11·78	9,218
Mean of 10 plots ...	9	6·88	29·32	6·12	63·67	3,902	18·4	1·77	6,884	13·69	12·81	8,968
Ba. 6032	9	·36	37·51	4·54	63·00	4,959	17·4	1·62	8,033	12·57	11·40	10,142
	10	·65	43·42	5·34	64·00	5,821	17·8	1·66	9,663	12·92	12·84	12,227
	9	·35	41·74	5·42	64·00	5,605	17·4	1·70	9.528	12·07	12·21	12,079
Mean of 10 plots ...	9	·45	40·89	5·10	63·67	5,462	17·5	1·66	9,075	12·52	12·15	11,483
B.H. 10 (12)	11		40·39	6·22	64·00	3,710	18·8	1·79	9,652	13·01	13·88	12,205
	11	·94	40·18	4·48	65·00	5,449	18·8	1 76	9,589	13·90	12·36	11,710
	10		39·87	8·37	64·00	5,319	19·0	1·85	9,839	13·49	11·16	12,414
Mean of 10 plots ...	11	·31	40·15	6·36	64·33	4,826	18 8	1·80	9,693	13·47	12·47	12,110
Ba. 8069 Mean of 3 plots ...	10	1·75	38·76	6·58	66·00	5,344	18·4	1·69	9,032	13·14	12·80	11,407
Ba. 11569	9	1·18	37·49	5·76	62·00	4,844	19·0	1·91	9,252	15·38	11·76	12,595
	11	4·59	36·08	5·40	62·00	4,647	19·8	1·90	8.829	15·00	13·05	11,564
	9	9·93	36·58	5· 9	61·00	4,856	20·2	1·98	9,614	14·21	11·65	12,602
Mean of 10 plots ...	10	5·23	36·72	5·52	62·67	4,782	19·7	1·93	9,232	14·90	12·25	12,254
B. 2001 Mean of 3 plots ...	11	8·89	37·72	7·08	65·00	5,123	18·4	1·74	8,913	13·47	13·53	11,381
B. 67 Mean of 3 plots ...	10	·67	43·42	6·79	66·00	5,979	18·8	1·73	10,343	13·21	11·78	12,849

TABLE XVII.—*Continued* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. HIGH RED SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by Mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
B. 117 ...	9	·75	29·97	6·97	61·00	3,801	19·6	1·91	7,260	14·60	15·68	9,801
	10	1·38	31·06	6·27	62·00	4,000	19·8	1·92	7,681	14·50	13·30	10,087
Mean of 7 plots ...	10	1·07	30·52	6·62	61·50	3,901	19·7	1·92	7,471	14·55	14·19	9,944
B. 268 .... Mean of 3 plots	10	22·58	31·55	3·91	66·00	4,361	18·4	1·74	7,570	13·55	10·65	9,576
B. 368 Mean of 3 plots	10	1·03	38·01	5·50	63·00	5,032	17·0	1·55	7,800	11·98	14·55	10,199
B 374 ...	9		41·66	10·19	63·00	5,461	19·4	1·88	10,267	14·00	14·43	13,065
	10	2·08	40·05	8·17	65·00	5,426	19·0	1·79	9,713	14·13	13·53	12,677
Mean of 7 plots ...	10	1·04	40·86	9·18	64·00	5,444	19·2	1·84	9,990	14·07	13·98	12,871
B. 391 ...	14	2·35	40·04	7·53	65·00	5,424	19·0	1·86	10,088	14·31	12·02	12,833
	11	2·65	39·64	7·28	62·00	5,118	19·2	1·92	9,827	14·46	14·06	12,839
Mean of 7 plots ...	13	2·50	39·84	7·40	63·50	5,271	19·1	1·89	9,958	14·39	13·04	12,836
B. 417	7	2·96	33·81	7·67	66·00	4,646	19·2	1·83	8,503	13·62	12·92	10,548
	7	2·33	26·78	4·74	63·00	3,519	18·8	1·81	6,370	13·93	11·78	8,152
	10	2·58	42·39	7·41	66·00	5,826	19·2	1·82	10,603	13·59	12·58	12,932
Mean of 10 plots ...	8	2·62	34·33	6·61	65·00	4,664	19·1	1·82	8,492	13·71	12·43	10,544
B. 465 Mean of 3 plots	13	3·52	37·99	6·92	63·00	4,997	18·6	1·75	8,744	13·51	12·45	11,497

TABLE XVII.—*Concluded.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. HIGH RED SOILS. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
B. 472	9	...	27·22	3·86	66·00	3,726	20·2	2·01	7,490	15·30	12·46	9,329
	9	...	46·02	8·32	64·00	6,133	19·2	1·91	11,711	14·55	11·52	14,997
Mean of 7 plots ...	9	...	36·62	6·09	65·00	4,930	19·7	1·96	9,652	14·93	13·19	12,163
B. 585	10	...	30·54	4·94	63·00	4,047	16·8	1·56	6,313	11·38	15·66	7,785
Mean of 3 plots												
B. 603	11	...	31·63	5·24	63·00	4,167	18·2	2·01	7,490	13·29	14·55	9,329
	9	·76	30·82	6·25	63·00	4,071	17·6	1·69	6,881	12·75	14·92	9,176
Mean of 7 plots ...	10	·38	31·23	5·75	63·00	4,119	17·9	1·85	7,186	13·02	14·74	9,253
B. 606	9	1·14	42·33	9·06	65·00	5,764	17·8	1·70	9,799	12·70	14·40	12,441
	10	9·09	33·65	7·08	64·00	4,507	18·0	1·67	7,527	13·21	14·47	9,573
Mean of 7 plots ...	10	5·12	37·99	8·04	64·50	5,136	17·9	1·69	8,663	12·96	14·44	11,007
B. 612	20	1·20	43·28	8·37	60·00	5,439	17·8	1·70	9,246	12·71	13·30	11,904
	11	·38	35·48	6·67	62·00	4,623	17·0	1·62	7,490	12·28	14·00	10,[illegible]0
Mean of 7 plots ...	16	·79	39·38	7·52	61·00	5,031	17·4	1·66	8,368	12·50	13·65	1[illegible],003
B. 663	11	...	38·63	6·66	64·00	5,191	17·2	1·58	8,202	12·05	15·80	10,426
	10	·66	45·29	6·25	61·00	5,806	17·6	1·67	9,697	12·82	14·30	13,0[illegible]6
Mean of 7 plots ...	11	·33	41·96	6·46	62·50	5,499	17·1	1·63	8,959	12·44	14·95	11,716
S.C. 12 (4)	8	2·49	34·64	5·63	62·00	4,490	18·2	1·82	8,172	13·28	12·67	10,303
Mean of 4 plots												

TABLE XVIII.—FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. SCOTLAND DISTRICT. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
W. Traus. ... Mean of 2 plots ...	12	20·35	38·15	6·43	66·00	5,291	17·0	1·49	7,884	12·11	10·88	10,347
Ba. 6032 ... Mean of 2 plots ...	8	8·55	32·54	4·50	65·00	4,456	16·4	1·40	6,238	11·16	12·95	8,353
B.H. 10 (12) ... Mean of 2 plots ...	7	7·09	25·00	5·17	67·00	3,500	18·4	1·72	6,020	13·72	11·77	7,684
Ba. 11569 ... Mean of 2 plots ...	8	18·84	31·54	3·72	62·50	4,095	19·8	1·85	7,576	13·72	14·37	9,693
B. 368 ... ... Mean of 2 plots ..	6	...	19·12	3·63	66·00	2,650	17·2	1·50	3,975	11·76	11·67	5,036
B. 374 ... ... Mean of 2 plots ...	11	10·43	37·10	5·29	64·00	4,967	18·0	1·63	8,099	13·15	12·72	10,922
B 391 ... ... Mean of 2 plots ...	9	17·20	27·00	4·84	66·00	3,738	17·8	1·63	6,085	13·49	12·12	8,160

TABLE XVIII.—*Concluded.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. SCOTLAND DISTRICT. PLANT CANES.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre.		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
B. 417 Mean of 2 plots	8	28·47	26·67	3·80	66·00	3,703	16·8	1·50	5,554	12·50	11·44	7,468
B. 472 Mean of 2 plots	8	23·68	21·28	3·48	66·00	2,930	18·8	1·77	5,186	13·64	12·58	6,503
B. 603 Mean of 2 plots	9	8·09	33·91	4·98	62·00	4,378	19·2	1·78	7,793	13·97	12·67	10,611
B. 606 Mean of 2 plots	6	13·89	25·39	5·26	67·00	3,578	16·8	1·48	5 296	11·50	11·99	6,540
S. C. 12(4) Mean of 2 plots	14	15·12	54·31	8·10	66·00	7,459	19·4	1·80	13,425	14·01	13·60	17,044

TABLE XIX.—FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM RED SOILS. FIRST RATOONS.

Name of Variety.	Number of canes per stool.	Per cent. by number of rotten canes.	Tons per acre		Expression by mill.	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops			Brix.	Saccharose.		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre.
								lb. per gallon.	lb. per acre.			
B.H. 10(12)	17	..	30·20	4·87	63·00	3,940	20·6	1·79	7,053	..	...	...
	14	·48	39·66	6·14	65·00	5,369	19·2	1·82	9,772	13·33	11·90	11,843
	13	...	31·11	3·37	65·00	4,201	19·2	1·82	7,664			9,289
	12	...	36·29	5·42	66·00	4,964	20·4	1·79	8,886	12·15	12·80	9,878
	11	...	30·07	6·77	66·00	4,113	20·4	1·79	7,362			8,185
Mean of 5 plots ..	11	·27	33·47	5·31	65·00	4 557	20·0	1·80	8,147	12·74	12·35	7,839
Ba. 11569	11	·71	33·80	5·44	66·00	4,634	19·8	1·75	8,110	12·67	12·69	9,593
	12	...	39·41	5·96	66·00	5,403	19 8	1·75	9,445			11,183
	12	...	41·48	4·02	64·00	5,488	21·0	1·86	10,203	...	...	
	8	3·94	24·11	5·44	63·00	3,161	19·4	1·85	5,847	14 67	10·97	7,923
	9	5·06	37·33	3·71	63·00	4,894	19·4	1·85	9,054			12,267
Mean of 5 plots ...	10	1·94	35·23	4·91	64·40	4,716	19·9	1·81	8,535	13·67	11·83	8,193
B. 67	10	·96	25·15	6·48	68·00	3,555	19·6	1·72	6 115	12·29	10·67	6,923
	12	...	26·40	5·73	68·00	3,733	19·6	1·72	6,420			7,267
	11	4·56	31·76	7·26	66·00	4,351	20·0	1·73	7,527	...	...	...
	11	...	36·04	4·54	68·00	5,099	19·4	1·81	9,229	14·39	11·20	11,615
	9	·78	29·04	6·48	68·00	4,108	19·4	1·81	7,436			9,359
Mean of 5 plots ...	11	1·26	29·68	6·10	67 60	4,169	19·6	1·76	7,345	13·34	10·94	7,033
B. 417 —	9	...	32·59	5·66	65·00	4,426	18·4	1·56	6,905	11·02	12·95	8,045
	7	...	29 63	3·11	65·00	4,024	18·4	1·56	6,277			7,314
	7	1·85	27·74	5·37	66·00	3 828	18·2	1·70	6,508	13·04	12·69	8,103
	6	...	23 16	7·95	66·00	3,193	18·2	1·70	5,133			6,764
	8	3·59	27·76	5·11	64 50	3,708	20·4	1·79	6,637	...	...	...
Mean of 5 plots ...	7	1·09	28·18	5·44	65·30	3,836	18·7	1 66	6,352	12·03	12·82	6,045

TABLE XIX.—*Concluded.* FIELD AND FACTORY RESULTS. SELECT SEEDLING STATIONS. MEDIUM RED SOILS. FIRST RATOONS

Name of Variety.	Number of canes per stool	Per cent. by number of rotten canes.	Tons per acre.		Expression by Mill	Gallons juice per acre.	In Laboratory Juice.			In Canes.		
			Canes.	Tops.			Brix.	Saccharose		Saccharose per cent.	Fibre per cent.	Saccharose lb. per acre
								lb. per gallon.	lb. per acre.			
B. 472	9	...	24·76	4·59	64·50	3,315	20·0	1·76	5,834	...	...	..
	8	..	27·50	7·00	64·00	3,668	19·0	1·85	6,786	13·40	13·56	8,254
	11	3·16	28·95	6·39	64·00	3,861	19·0	1·85	7 144			8,689
	8	...	25·07	6·74	64·00	3,330	20·0	1·78	5 928	11·95	16·68	6,710
	11	...	31·97	8·18	64·00	4,247	20 0	1·78	7,559			8,557
Mean of 5 plots ..	9	·63	27·65	6·58	64·10	3,684	19·6	1·80	6,650	12 68	15·12	6,442

TABLE XX. LOW BLACK SOILS.

Name of Variety.	Composition per cent. of Canes.				Composition per cent. of Laboratory Juice.				
	Water.	Saccharose.	Fibre.	Other Substances.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
W. Transparent									
Highest ...	72·11	16 40	14·41	4·60	81·36	19·66	.96	3·04	93·4
Lowest ...	69·22	13·43	10·30	1·23	79·22	14·73	·48	·70	79·0
Mean of 10 samples	70·57	14·59	11·86	2·98	79·78	18·44	·72	2·06	86·1
Ba. 6032									
Highest ...	71·74	14·75	14·23	5·76	81·97	17·20	1·07	2·64	89·4
Lowest ...	69·57	11·87	11·84	1·45	80·58	14·94	·73	1·22	81·5
Mean of 10 samples	70·89	13·04	12·92	3·14	81·15	15·77	·87	2·22	83·6
Ba. 11569									
Highest ...	70·86	15·97	14·76	4·47	79·81	19·50	·96	2·74	90·2
Lowest ...	67·43	12·87	11·16	1·92	78·20	16·95	·65	1·20	83·6
Mean of 10 samples	69·52	14·57	12·54	3·38	78·98	18·07	·80	2·13	86·0
B. 117									
Highest ...	69·85	17·59	16·38	3·94	78·96	21·18	·79	2·92	93·5
Lowest ...	67·57	14·01	10·68	·62	77·35	17·81	·39	·68	85·8
Mean of 4 samples	68·80	15·71	13·24	2·24	78·22	19·04	·58	2 16	87·3
B. 268									
Highest ...	71·86	15·00	15·30	5·44	80·58	18·26	1·01	2·37	91·4
Lowest ...	69·56	13·67	9·81	1·02	78·79	16·88	·58	·70	83·4
Mean of 5 samples	70·39	14·26	12·66	2·88	79·74	17·48	·78	1·60	86·4
B. 368									
Highest ...	71·06	16·12	16·94	6 59	81·36	18·35	1·03	2·66	91·7
Lowest ...	69·61	12·07	11·20	·72	79·98	15·66	·59	1·01	83·4
Mean of 5 samples	70·24	13·46	12·84	3·46	80·62	16·76	·73	1·89	86·5
B 374									
Highest ...	69·37	14·98	14·95	4·22	79·55	18·90	·79	2·73	89·1
Lowest ...	67 17	13·83	12·58	2·69	78·62	17·39	·59	1·52	84·0
Mean of 5 samples	68·32	14 39	13·82	3 47	78·99	18·14	·69	2·18	86·4
B. 381									
Highest ...	69·45	15·98	13·33	3·82	80·58	19·11	·97	2·38	90·8
Lowest ...	69·06	13·79	12·60	1·97	78·96	17.04	·77	·99	84·4
Mean of 3 samples	69·26	14·89	12·97	2·90	79·78	17·87	·84	1·51	88·4
B. 391									
Highest ...	72·01	15·90	12·16	4·30	80·15	19·29	·83	2·37	91·7
Lowest ...	69·32	13·33	11·43	2·06	78·62	17·07	·58	1·07	85·1
Mean of 5 samples	70·25	14·76	11·91	3·08	79·30	18·17	·71	1·82	87·7
B. 417									
Highest ...	69·92	16 62	15·03	3·53	79·98	19·43	·75	2 95	89·8
Lowest ...	68·51	13·46	12·24	2·07	78·36	16·85	·56	1·46	83·4
Mean of 6 samples	69·17	15·09	13·19	2·55	79·04	18·03	·65	2·33	86·0
B. 465									
Highest ...	70·46	15·87	15·58	4·46	79·55	18·37	·93	2 86	87·3
Lowest ...	68·19	13·48	11·10	2·32	78·20	17·02	·65	1·75	83·3
Mean of 5 samples	69·33	14·61	12·99	3 07	78·86	17·99	·76	2·39	85·1
B. 472									
Highest ...	70·14	15·89	14·30	6·06	80·41	19·87	·86	2 65	91·1
Lowest ...	67·20	13·19	10·62	1·65	78·20	16·80	·58	1·21	83·5
Mean of 5 samples	69·10	14·27	13·12	3·52	79·50	17·87	·71	1·92	87·1

TABLE XX.—*Continued.* LOW BLACK SOILS.

Name of Variety.	Composition per cent. of Canes.				Composition per cent. of Laboratory Juice.				
	Water.	Saccharose.	Fibre.	Other Substances.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
B. 505									
Highest ...	69·61	17·47	15·20	2·64	78·79	20·81	1·15	2·59	91·9
Lowest ...	68·64	14·83	11·04	1·33	77·35	17·98	·76	1·08	84·7
Mean of 5 samples	68·97	16·34	12·64	2·06	77·94	19·44	·75	1·87	88·1
B. 585 (1 sample)	70·83	11·59	14·97	2·61	81·19	15·37	·89	2·55	81·7
B. 600									
Highest ...	71·31	14·73	15·17	6·08	81·36	17·19	·87	2·98	88·5
Lowest ...	69·87	11·87	10·74	1·95	79·81	15·16	·64	1·51	81·5
Mean of 5 samples	70·62	13·15	12·53	3·70	80·46	16·32	·78	2·43	83·5
B. 603									
Highest ...	70·81	14·48	14·44	4·01	81·62	17·78	·82	2·90	88·1
Lowest ...	68·41	12·44	11·73	2·77	79·38	15·58	·56	1·58	82·1
Mean of 5 samples	69·62	13·61	13·22	3·56	80·07	16·96	·75	2·22	85·1
B. 604									
Highest ...	73·43	14·59	14·80	3·88	80·75	18·04	·93	2·53	88·2
Lowest ...	68·93	12·39	11·07	1·91	79·98	15·99	·52	1·48	83·1
Mean of 5 samples	71·17	13·73	12·39	2·71	79·96	17·13	·73	2·19	85·5
B. 605									
Highest ...	70·66	15·62	15·96	7·20	79·98	18·83	·89	2·63	89·5
Lowest ...	68·52	13·17	10·92	1·49	78·20	16·59	·72	1·32	82·9
Mean of 5 samples	69·02	14·27	13·18	3·49	78·98	17·98	·82	2·23	85·5
B. 606									
Highest ...	71·51	13·95	13·08	6·27	81·36	16·23	1·11	2·47	84·8
Lowest ...	69·61	12·73	10·13	3·08	80·15	15·57	·64	1·96	81·8
Mean of 5 samples	70·79	13·05	11·61	4·5	80·70	16·04	·95	2·30	83·2
B. 612									
Highest ...	72·41	14·15	13·44	3·76	81·19	17·17	·93	2·60	87·7
Lowest ...	69·53	12·97	11·04	2·51	80·41	15·93	·61	1·17	82·0
Mean of 5 samples	71·00	13·52	12·40	3·08	80·72	16·38	·80	1·98	85·0
B. 654									
Highest ...	69·25	14·39	14·80	3·37	80·15	17·49	·96	2·50	87·5
Lowest ...	68·05	13·48	13·78	2·76	79·55	16·60	·72	1·78	83·6
Mean of 4 samples	68·67	13·94	14·35	3·07	79·96	17·19	·82	2·04	85·8
B. 662									
Highest ...	72·09	13·52	16·08	3·61	81·36	16·36	1·23	3·08	85·0
Lowest ...	69·15	12·06	11·76	2·25	80·75	15·06	·83	1·75	78·3
Mean of 5 samples	70·63	12·77	13·42	3·19	80·98	15·74	1·02	2·26	82·8
B. 663									
Highest ...	72·58	12·94	13·94	4·20	81·62	15·95	1·23	2·62	86·8
Lowest ...	69·83	12·14	11·08	2·36	81·02	15·02	·63	1·80	80·9
Mean of 5 samples	71·14	12·65	12·82	3·34	81·45	15·45	·97	2·13	83·3
B. 664 (1 sample)	68·58	14·30	15·34	1·78	78·03	19·76	·58	1·63	90·0

TABLE XX—*Concluded.* LOW BLACK SOILS.

COMPOSITION PER CENT. OF

Name of Variety.	Canes.				Laboratory Juice.				
	Water.	Saccharose.	Fibre.	Other Substances.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
B 666 ...									
Highest ...	71·98	13·65	16·56	4·71	82·23	16·55	1·23	3·61	86·0
Lowest ...	69·64	10·59	12·43	1·19	80·75	13·09	·97	1·73	73·7
Mean of 4 samples	70·81	12·11	13·87	3·18	81·41	14·79	1·11	2·70	79·5
S.C. 12(4)									
Highest ...	69·83	15·22	15·04	3·86	80·41	18·84	·77	2·08	90·7
Lowest ...	67·82	13·39	12·62	2·07	78·79	16·89	·54	1·71	84·1
Mean of 5 samples	68·91	14·31	13·94	2·84	79·64	17·67	·68	2·00	86·8

TABLE XXI. MEDIUM BLACK SOILS. PLANT CANES.

COMPOSITION PER CENT OF

Name of Variety.	Canes.				Laboratory Juice.				
	Water.	Saccharose.	Fibre.	Other Substances.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
W. Transparent									
Highest ...	72·15	14·94	13·93	5·12	81 02	17·37	1·23	3·01	89·5
Lowest ...	69·39	11·56	10·42	2·49	80·41	15·78	·80	1·22	80·6
Mean of 3 samples	70·77	13·25	12·18	3·81	80·67	16 38	·95	1·99	84·8
B.H. 10(12)									
Highest ...	67·71	15 92	14·52	6·38	79·55	19·50	·89	3·29	89·4
Lowest ...	67·40	12·54	13·37	2·16	78·20	17·15	·68	1·62	80·9
Mean of 3 samples	67·56	14·23	13·95	4·27	78·55	18 01	·78	2·36	85·1
Ba. 11569									
Highest ..	70·99	15·31	13·05	5 16	79·38	18·66	·96	3·37	89·8
Lowest .	68·79	13·00	11·33	2·37	78 96	16·71	·70	1·42	79·4
Mean of 3 samples	69·89	14·16	12·19	3·77	79·19	17·65	·87	2·29	84·8
P. 117									
Highest ...	69·50	16·44	12·72	4·81	78·79	19·41	1·15	2·91	89·0
Lowest ...	69·15	13·32	12·01	2·05	78·20	17·15	·59	1·30	80·9
Mean of 2 samples	69·33	14·88	12 37	3·43	78·50	18·28	·87	2 36	85·0
B. 374									
Highest ...	68·40	15·58	14·12	5·55	78·96	18·74	·77	3·56	89·0
Lowest ...	68·39	11·93	12·70	3·33	78·96	16·71	·59	1·71	79·4
Mean of 2 samples	68·40	13·76	13·41	4·44	78·96	17·73	·68	2·64	84·2
B. 391									
Highest ...	69 99	16·01	14·73	5·35	79·55	19·76	·82	3·56	90·0
Lowest ...	67·34	11·82	12·84	1·92	78·03	16·19	·70	1·39	79·2
Mean of 2 samples	68·67	13·92	13·79	3·64	78·79	17·98	·76	2·48	84·6
B. 603									
Highest ...	69 94	14·38	14·88	4·43	79·81	18·03	·89	3·37	87 4
Lowest ...	67·94	11·83	13·80	2·80	79·38	15·93	·61	1·98	78·9
Mean of 2 samples	68·94	13·11	14·34	3 62	79 60	16·98	·75	2·68	83·2
B. 606									
Highest ...	72·37	13·84	12 73	5·03	81·02	14·78	·87	3·67	87·3
Lowest ...	70·92	11·32	11·00	2·79	80·75	16·56	·80	1·55	76·8
Mean of 2 samples	71·65	12·58	11·87	3·91	80·89	15·67	·84	2·61	82·1
B. 612									
Highest ..	72·22	14·55	12·87	4·81	80·75	17·26	·77	3·33	88·1
Lowest ...	70·87	11·45	10·27	2·96	80 41	15·15	·77	1·56	78·7
Mean of 2 samples	71·55	13·00	11·57	3 89	80·58	16·21	·77	2·45	83·4
B. 663									
Highest ..	72·01	13·40	11·67	6·06	81·19	16 02	·89	3·47	85·2
Lowest ...	71 20	11·32	11·42	2·92	80·41	15·32	·80	1·90	78·2
Mean of 2 samples	71·61	12·36	11·55	4·49	80·80	15·67	·85	2·69	81·7
S C. 12(4)									
Highest ..	71·47	14·41	13·56	5·67	80 15	17·62	·72	3·30	88·8
Lowest ...	68 62	12 15	11·73	2·39	79 55	16·47	·68	1·51	80·5
Mean of 2 samples	70·05	13 28	12·65	4·03	79·85	17·05	·70	2 41	84·7

TABLE XXII. HIGH RED SOILS. PLANT CANES.
COMPOSITION PER CENT OF

Name of Variety.	Canes.				Laboratory Juice.				
	Water	Saccharose.	Fibre.	Other Substances.	Water.	Saccharose.	Glucose	Other Substances.	Quotient of Purity.
W. Transparent									
Highest ...	72·49	14·59	14·28	2 79	81·80	17·34	·83	1·50	92·18
Lowest ...	69·78	12·77	11·78	1·35	81·36	15·87	·80	·47	87·88
Mean of 3 samples	71·33	13·69	12·81	2·17	81·59	16·48	·82	1·11	89·68
Ba. 6032									
Highest ...	73·68	12 92	12·84	4·68	82·58	15·92	·97	1·58	91·1
Lowest ...	71·35	12·07	11·40	1·16	82·23	15·17	·67	·53	87·1
Mean of 3 samples	72·69	12·52	12·15	2·64	82·46	15·54	·84	1·16	88·6
B.H. 10(12)									
Highest ...	73·20	13·90	13·88	2·77	81·19	17·21	·89	1·65	90·7
Lowest ..	70·34	13·01	11·16	1·51	81·02	16·39	·77	·90	87·1
Mean of 3 samples	71·92	13 47	12·47	2·14	81·13	16·76	·84	1·27	88·8
Ba. 11569									
Highest ...	71·05	15·38	13·05	2·99	81·02	18·33	·80	1·48	93·6
Lowest ...	70·45	14·31	11·65	1·50	79·81	17·62	·75	·44	88·8
Mean of 3 samples	70·70	14·90	12·25	2·25	80·33	17·91	·77	·99	91·1
B. 117									
Highest ...	69·83	14·60	15·08	2·37	80·41	17·81	·75	1·35	90·5
Lowest ...	69·10	14·50	13·30	1·22	80·15	17·73	·69	1·11	89·7
Mean of 2 samples	69·47	14·55	14·19	1·80	80·28	17·77	·72	1·23	90·1
B. 374									
Highest ...	70·30	14·13	14·43	2·04	81·02	17·46	·80	1·52	89 9
Lowest ...	69·71	14·00	13·53	1·86	80·58	16·66	·80	1·16	87·8
Mean of 2 samples	70·01	14·07	13·98	1·95	80·80	17·06	·80	1·34	88·9
B. 391									
Highest ...	71 42	14·46	14·06	2·25	81·02	17·85	·83	·84	92·7
Lowest ..	69·90	14·31	12·02	1·58	80·75	17·31	·73	·67	91·2
Mean of 2 samples	70 66	14·39	13·04	1·92	80·89	17·58	·78	·76	92·0
B. 417									
Highest ...	72·00	13·93	12·92	3·10	81·19	17·01	1·01	1·64	89·6
Lowest ...	70·36	13·59	11·78	2·29	80·75	16·86	·69	1·08	87·9
Mean of 3 samples	71·26	13·71	12·43	2·60	80·90	16·93	·86	1·32	88·6
B. 472									
Highest ...	69·81	15·30	14·52	2·43	80·75	18·61	·66	·91	92·3
Lowest ...	69·51	14·55	12·46	1·39	79·81	17·76	·64	·83	92·2
Mean of 2 samples	69·68	14·93	13·49	1·91	80 28	18·19	·65	·89	92·3
B. 603									
Highest ...	70·63	13·29	14·92	2·22	82·40	16 15	·97	1·08	89·9
Lowest ...	70·11	12·75	14·55	1·53	81·80	15·82	·90	·88	88·7
Mean of 2 samples	70·37	13·02	14·74	1·88	82·10	15·99	·94	·98	89·3

TABLE XXII.—*Concluded.* HIGH RED SOILS. PLANT CANES.

COMPOSITION PER CENT OF

Name of Variety.	Canes.				Laboratory Juice.				
	Water	Saccharose.	Fibre.	Other Substances.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
B. 606									
Highest ...	70·74	13·21	14·47	2·58	82·23	15·90	·73	1·70	89·5
Lowest ...	70·32	12·70	14·40	1·67	81·97	15·60	·65	1·22	86·6
Mean of 2 samples	70·53	12·96	14·44	2·13	82·10	15·75	·69	1·46	88·0
B. 612									
Highest ...	72·68	12·71	14·00	2·14	83·02	15·90	·90	1·22	89·5
Lowest ...	71·58	12·28	13·30	1·31	82·23	15·20	·65	·88	89·5
Mean of 2 samples	72·13	12·50	13·65	1·73	82·63	15·55	·78	1·05	89·5
B. 663									
Highest ...	70·09	12·82	15·60	2·79	83·02	15·67	1·17	1·68	92·3
Lowest ...	69·66	12·05	14·30	2·69	82·75	14·81	·76	·14	85·9
Mean of 2 samples	69·88	12·44	14·95	2·74	82·89	15·24	·97	·91	89·1

TABLE XXIII.—MEDIUM RED SOILS. RATOONS.

COMPOSITION PER CENT OF

Name of Variety.	Canes.				Laboratory Juice.				
	Water.	Saccharose.	Fibre.	Other Substances.	Water.	Saccharose.	Glucose.	Other Substances.	Quotient of Purity.
B. H. 10 (12)									
Highest	72·09	13·33	12·80	5·41	80·75	16·92	·86	3·27	87·9
Lowest	69·64	12·15	11·90	2·68	79·38	16·55	·80	1·47	80·3
Mean of 3 samples	70·87	12·74	12·35	4·05	79·89	16·68	·83	2·60	83·6
Ba. 11569									
Highest	71·86	14·67	12·69	4·74	80·58	17·19	·86	3·01	88·5
Lowest	69·90	12·67	10·97	2·50	78·96	16·23	·83	1·40	81·6
Mean of 3 samples	70·88	13·67	11·83	3·62	79·90	16·86	·84	2·40	84·4
B. 67									
Highest	71·11	14·39	11·20	6·17	80·58	16·81	·80	3·22	86·6
Lowest	70·87	12·29	10·67	3·30	79·98	15·97	·71	1·81	80·1
Mean of 3 samples	70·99	13·34	10·94	4·74	80·32	16·27	·76	2·65	83·3
B. 417									
Highest	71·18	13·04	12·95	4·85	81·80	16·56	·89	3·12	87·2
Lowest	71·06	11·02	12·69	3·21	79·55	14·55	·71	1·50	79·2
Mean of 3 samples	71·12	12·03	12·82	4·03	80·99	15·66	·81	2·54	82·8
B. 472									
Highest	70·43	13·40	16·68	4·13	81·02	17·21	·73	3·02	90·7
Lowest	67·24	11·95	13·56	2·61	79·98	16·31	·58	1·04	81·5
Mean of 3 samples	68·84	12·68	15·12	3·37	80·33	16·67	·67	2·33	85·5

TABLE XXIV. SCOTLAND DISTRICT. PLANT CANES.

COMPOSITION PER CENT. OF

Name of Variety.	Canes.				Laboratory Juice.				
	Water.	Saccharose.	Fibre.	Other Substances.	Water.	Saccharose	Glucose.	Other Substances.	Quotient of Purity.
W. Transparent ...	74·17	12·11	10·88	2·84	83·02	13·98	·98	2·02	82·3
Ba. 6032 ...	72·56	11·46	12·95	3·03	83·63	13·17	1·18	2·02	79·9
B.H. 10(12) ...	71·32	13·72	11·77	3·19	81·62	16·04	·87	1·47	87·3
Ba. 11569 ...	68·32	13·72	14·37	3·59	80·15	17·16	·93	1·76	86·5
B. 368	72·91	11·76	11·67	3·66	82·75	14·06	·78	2·41	81·5
B. 374	71·47	13·15	12·72	2·66	81·97	15·23	·87	1·93	84·5
B. 391	70·02	13·49	12·12	2·37	82·23	15·24	1·11	1·42	85·8
B. 417	73·40	12·50	11·41	2·66	83·19	14·49	·90	1·82	83·8
B. 472	72·22	13·64	12·58	1·56	81·19	16·48	·83	1·50	87·6
B. 603	70·81	13·97	12·67	2·55	80·75	16·55	·89	1·81	86·0
B. 606	73·10	11·50	11·99	3·41	83·19	13·90	1·02	1·89	82·7
S.C. 12(4) ...	69·84	14·01	13·60	2·55	80·58	16·72	·72	1·98	86·1

COTTON EXPERIMENTS.

Sea Island Cotton.

The system of experiments with cotton with a view to improve the quality and increase the yield of lint of the strains grown in the Island was continued as in previous years.

This season the best 40 seeds (according to lint analysis) of each of the twenty plants selected last year were planted out in separate rows for further individual plant selection.

Besides the 800 special seeds mentioned above, two hundred and fifty seeds of each of the 20 selected plants were planted out in progeny rows so that selection would then depend on the largest yield of seed cotton per row and not on the yield of an individual plant.

The remainder of the seed from each of the 20 selected plants was planted out in separate plots in the same field as the progeny rows, the entire planting covering an area of 4.78 acres.

A yield of 1,217 lb. seed cotton per acre was obtained from this field. It may be mentioned that the plants from an acre of this field were dug up before half of the bolls had ripened, which naturally reduced the yield per acre.

Owing to press of other work it was found to be impossible for any individual plant selection to be carried out among the plants grown from the best 40 seeds.

The material for laboratory analysis was taken from the cotton seed obtained from the progeny rows ; the seed for future selection work was selected from the rows which gave the heaviest yield of seed cotton per acre with the best quality lint. A number of seeds possessing the most desirable lint characters were selected and planted in the bee and moth proof cotton house at Codrington for further selfing and crossing.

The seed obtained from the various genetic crosses and selfs was planted out in a separate field at Codrington. Samples of seed cotton were analysed, but the quality was so inferior that it was decided not to replant any of this seed.

Sport Cotton.

The seed obtained from the fifteen trees selected last year was planted out in progeny rows of 50 plants in a field rented from Waterford Plantation. The rest of the seed from each individual plant was planted in separate plots in the same field; the entire planting covered an area of .81 acres. A yield of 959 lb. of seed cotton per acre was obtained.

Samples of seed cotton for laboratory analysis were taken from the progeny rows. A number of the best seeds (according to lint analysis) were planted in the cotton house at Codrington for selfing and crossing.

Native Cotton.

The usual procedure adopted to improve this cotton was continued with satisfactory results. Eleven seeds with exceptional lint characters were selected and planted in a cotton house at Codrington.